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Soundcraft Si Expression
PreSonus Active Integration

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SD9 Digital Mixing Console

SD8B Digital Broadcast Console

SD10B Digital Broadcast Console

SD5 Digital Mixing Console

SD7B Digital Broadcast Console

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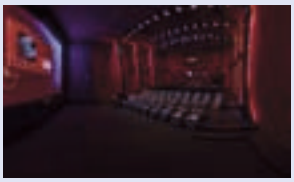

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The Hobbit – love it or hate it – has brought the issue of frame rates and heightened reality to the fore. KEVIN HILTON explores the flickering ins and outs of FPS.

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Sound plays a key role especially in the earlier scenes of the now-classic Matrix, and KEVIN HILTON finds out just how the surreal and cybernetic audio worked to best effect in this stark, alternative world.

The NAMM show this year was typically vibrant – it's hard not to be upbeat in the Anaheim convention halls when you're surrounded by examples of every form of life – and every unspoken uniform – that populates the audio industries ("Meet me in the guitar hall, I'll be the one wearing a black T-Shirt").

PreSonus and Behringer both had long press conferences – necessary to fit in the sheer number of new products they chose to launch at the show. It wasn't all shipping, but NAMM is a favoured launch platform so, ready or not, they have to tell the world.

The prize for causing the most deep thought in a room of technical journalists went to DiGiCo and Waves; they have collaborated on the new Soundtracs DiGiGrid brand and product family, based around the Waves SoundGrid networking and DSP technology. Not only is it an entrant into the grand connectivity competition, it's a serious play in the movement towards next gen' plug-in formats and hosts, and also a strategic partnership that will no doubt spread its wings into many corners of our world.

The consistently-busiest-stand award (actually, 'the award for most difficult stand to walk past because too many black T-Shirts have gathered') goes to Slate Pro Audio. The object of everyone's interest was the the evolution of the Raven into Raven MTX – a touch-screen mixer and DAW controller with analogue monitoring that while still big, is notable because it's now a bit smaller.

In fact, no crowds could possibly compete with the endorsee appearances, where as many people gather to try and work out why the first crowd has gathered as have gathered in the original crowd, if you know what I mean. There were quite a few crowds anyway – and I strongly suspect that least 40 percent of the people in any one queue were not absolutely certain why they were queuing.

In the star-stakes, no-one competes with Stevie Wonder's regular appearances at the show, and as if in acknowledgement of that, he was officially made Mayor Of NAMM. I'm not sure what the Mayoral duties are, but it's a very rock and roll honour.

Yes, NAMM is that mad. But it is also a fantastic place to find new stuff, and there was plenty around this year; but the nature of the show also means that relief from the high tech onslaught is always just around the corner. A hefty chunk of metalwork with jack plugs in is a sound engineer's teddy bear.

Paul Mac, Editor

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Sennheiser has the solution for video journalists.

The new MKE 600 camera microphone is capable of mastering even the toughest video sound challenges. Its high level of directivity ensures that it picks up sound from the camera direction while reliably avoiding unwanted background noise. Wind noise is minimised with a switchable low-cut filter and the MKE 600 can be powered by either a standard AA battery or by phantom power.

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ULTRASONE

A lesson for all involved in business who use social media – check you know how to operate the Twitter account before you sack the person who set it up. Head honchos at HMV got into a bit of a tizz when a disgruntled employee tweeted from the official HMV @hmvtweets account 'live from HR where we're all being fired! Exciting #hmvXFactorFiring'. The soon-to-be-ex staff member then went on to say: 'There are over 60 of us being fired at once! Mass execution of loyal employees who love the brand #hmvXFactorFiring'.

An explanation came next: 'Sorry we've been so quiet for so long. Under contract, we've been unable to say a word or – more importantly – tell the truth #hmvXFactorFiring'.

Then a final, poignant tweet read: 'Just overheard our Marketing Director (he's staying, folks) ask, "How do I shut down Twitter?" #hmvXFactorFiring. The tweets were quickly removed from the @hmvtweets page, but not quickly enough... oops.

Subscriber Prize Draw Winner

Congratulations to to Ben Costerton from High Wycombe, who is this month's lucky winner of the AM subscriber's draw. Every month throughout 2013, one randomly selected subscriber will win an sE 4400a microphone. To be entered into the draw, you must have a current digital or print subscription. To get one, go online to the address below. Good luck!

www.audiomedia.com/subscribe.html

Don't forget to check out our website. You can keep up to date with industry news, whatever your particular interest – you'll find recording, post production, broadcast, live sound news, and events. There are features about all aspects of audio, and blogs from a variety of contributors. Available for download from the website are our very useful indeed International Buyers Guides, each focused on a specific area of technology; and back issues of *Audio Media* itself. Come and visit us at www.audiomedia.com.

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REDNET PCIe Card – 128 I/O low latency RedNet interface for PC and Mac

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www.focusrite.com/RedNet

*Shipping Q1 2013 **Shipping Q2 2013

PreSonus Premieres Products

Fostex launched the PX-5 professional monitor speaker at NAMM. The PX-5 is a monitor consisting of a 5.2-inch Crimson woofer and one-inch tweeter powered by 35W and 18W full digital amplifier. It features Digital Network Filter (FIR type) linear phase filtering claimed to enable sound positioning almost identical to a full range driver, plus 440 step level control by volume/trim adjustments. It also has +/- 3dB step tweeter level control and +/- 20 step LF roll off frequency adjustment.
www.fostexinternational.com

Apogee Electronics has announced Symphony 64|Thunderbridge – a 64-channel Thunderbolt interface for Symphony I/O, Rosetta Series and X-Series converters. The interface will connect Apogee converters to any Thunderbolt equipped Mac computer. Capable of up to 64 channels of input and output of up to 192kHz, it offers latency of 1.8ms at 96kHz/32 buffer. The device has two Thunderbolt ports for connecting additional devices, and two PC-32 ports for connection to Apogee interfaces.
www.apogeedigital.com

PreSonus has launched a number of products at NAMM. It introduced the StudioLive 32.4.2AI 32-channel performance and recording digital mixer to its StudioLive series. The new mixer features next-generation Active Integration technology, including a dual-core computing engine that offers over 64 times the processing power and 10,000 times more RAM than the previous top-of-the-line StudioLive 24.4.2. Its integral communications make wireless control of the mixer possible without the need for an external computer. It has 32 Class A XMAX mic pre-amps with individually switched phantom power, 32 line inputs, 14 aux mixes, four subgroups with variable output delay, Fat Channel dynamics processing and parametric EQ, and a 48x34 FireWire S800 audio interface.

Also revealed was the new StudioLive AI-series Active Integration Loudspeakers, which PreSonus claims are the first active loudspeakers that deliver 'studio monitor accuracy on stage' and are equipped with complete wireless or wired remote control and monitoring using an iPad or laptop. All the AI-series speakers incorporate Fulcrum Acoustics TQ Temporal Equalisation algorithms.

PreSonus also unveiled its new Eris-series studio reference monitors. The 'ultra-affordable' two-way, bi-amped monitor speakers can be user adjusted to the acoustic space, and offer an accurate response with tight bass and clear upper end. The new Sceptre-series CoActual studio reference monitors were also announced, featuring an advanced coaxial design that works integrally with a 32-bit, 96kHz, dual-core processor, which also uses Fulcrum Acoustic's TQ Temporal Equalisation technology.

"The new mixer features next-generation Active Integration Technology…"

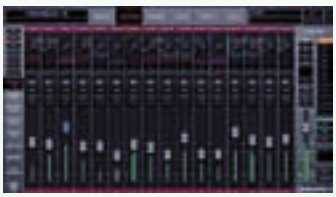
The company also announced Capture 2.0, a major upgrade to its audio recording software for Mac and Windows. Designed for live recording, Capture is bundled with all PreSonus StudioLive-series digital mixers and is preconfigured for instant use. Version 2 further streamlines workflow and adds significant new safety features.

Other announcements included the news that PreSonus has licensed Audinate's Dante digital media networking technology and will incorporate Dante into optional networking cards for several of its new products.
www.presonus.com

Get On the Grid

DiGiCo, its studio sound sister company Soundtracs, and Waves Audio have introduced DiGiGrid; hardware and software processing solutions to digital production needs that enable users of Native DAWs, Pro Tools, and MADI-enabled live and broadcast mixing consoles to have access to Waves SoundGrid audio networking and real-time processing. DiGiGrid offers a full line of SoundGrid I/Os, Pro Tools-to-SoundGrid I/Os, and MADI-to-SoundGrid I/Os.

Also introduced at NAMM was the Waves Audio eMotion Mixer for SoundGrid systems. The first products are the eMotion LV1 for live sound front-of-house



and monitor applications, and eMotion Studio, for recording, mixing, and post production facilities.

Waves also announced the IR-Live Convolution Reverb, customised for live sound use, the Manny Morroquin Signature Series Collection, and the GEQ graphic equaliser plug-in, developed for live users.
www.waves.com
www.digigrid.net

Fidelity at A-T

At NAMM, Audio-Technica was showing its new high-fidelity System 10 2.4GHz digital wireless, aimed at those looking for ease of use at an economical price point. Also on the stand was the AT2020USB+ cardioid condenser microphone. Equipped with a USB output, the microphone is designed for digitally capturing music or any acoustic audio source with the user's choice of recording software. It features a built-in headphone jack with volume control that allows users to digitally monitor their microphone signal in real time, and a built-in high-output internal headphone amplifier. The ATH-M50RD professional studio monitor headphones were on display, a red limited-edition version of A-T's flagship ATH-M50 headphones. The company also displayed the first in its flagship 50 Series of elite studio microphones, the AT5040 cardioid condenser microphone.

www.audio-technica.com

Universal Plugs In

Universal Audio has announced the impending release of the API 500 Series EQ Plug-in Collection, featuring emulations of the API 550A three-band and API 560 graphic equalisers. Also announced >

Behringer Bounty

Behringer has announced the addition of four new models to its X32 product line. The X32 Compact, X32 Producer, X32 Rack and X32 Core all share the flagship X32's performance specifications, with digital connectivity, a range of virtual FX, Midas-designed mic pre-amps, and a wide variety of inputs and outputs. All models include Klark Teknik-engineered AES50 ports, which can be connected to Behringer S16 digital snakes for expanded I/O regardless of mainframe size, and can be controlled using XControl for PC/Mac/Linus, XiControl optimised for iPad, and XiQ for iPhone/iPod Touch. The Compact and Producer are both 40-input channel, 25-bus digital mixing consoles with 16 programmable Midas pre-amps and 17 motorised faders; the Compact has a slimmed down chassis for use in applications where space is limited, while the Producer has a high-resolution five-inch TFT screen to provide complete visibility into the mix. The Rack mixer features 16 programmable Midas pre-amps and a five-inch TFT, housed in 3RU housing. The Core puts all of the mixing, routing, and FX power of the X32 into a 1RU rack-mountable chassis.

The company has also launched the iQ series networked loudspeaker line as its flagship range in the live speaker market. The series consists of four full-range cabinets – iQ15, iQ12, iQ10, and iQ8 – that share a common set of features but differ only in low-frequency driver size. All are powered, two-way design, with 1.75-inch titanium diaphragm compression drivers. Two powered subwoofer cabinets – the iQ18S and iQ15S – complete the series, using Turbosound 18-inch/15-inch long excursion transducers with high temperature voice coils.

Behringer also introduced its new iStudio family of professional docking stations for Apple iPad versions with 30-pin and Lightning connectors. iStudio provides straightforward and direct connectivity for microphones, guitars and basses, MIDI devices, line level sources and turntables, all with adjustable gain, independent output and headphone controls, plus monitoring option. MIDI accessibility is provided via standard and USB MIDI sockets. It is compatible with all CoreAudio and CoreMIDI apps in Apple's app store.

"...digital connectivity, a range of virtual FX, Midas-designed pre-amps, and a wide variety of inputs and outputs."

www.behringer.com

Turbosound debuted its re-engineered Milan series of powered loudspeakers at NAMM. Encompassing a total of five loudspeakers including the brand new 12-inch two way M12 and compact 15-inch bandpass M15B subwoofer, the Milan series has significantly uprated and efficient Class D amplifiers. Full-range models feature 1000 watts of bi-amplified power coupled with Klark Teknik digital signal processing.

www.turbosound.com

Allen & Heath has launched the ME Personal Mixing System, a personal monitoring solution, universally compatible with A&H and other digital mixers. Central to the system is

the fully-customisable ME-1 personal mixer, powered and connected via Cat5 and capable of managing up to 42 sources. A&H also added to its range of iPad apps with the new GLD mixing system controller, GLD Remote

www.allen-heath.com

> was the Teletronix LA-2A Classic Leveller Collection, modelled on the entire electronic path of three hardware units: 'Silver, 'Gray' and the original LA-2 model. In addition, the company announced the debut of Softube's Vintage Amp Room, Metal Amp Room, Bass Amp Room, and Acoustic Feedback Deluxe plug-ins.

Universal Audio also unveiled future enhancements for the Apollo High-Resolution Interface. Among the new Apollo interface features is multi-unit cascading, which combines two Apollo interfaces into a single system via FireWire or Thunderbolt. Multi-unit cascading provides simultaneous use of 16 analogue inputs/outputs, including eight Apollo mic pre-amps, plus 12 digital inputs and outputs, navigated via a redesigned Console application.

www.uaaudio.com

Cherry Picking Bugs

Radial's NAMM offerings included the StageBug SB-1 Acoustic, a direct box that has been optimised for acoustic guitar, and the Cherry Picker: a studio pre-amp selector, which employs 'straight wire' relay based switching to enable the engineer to instantly switch and compare up to four pre-amps. There are no transformers or buffers in the circuit and 48V phantom power is generated internally to reduce switching noise. The Gold Digger lets the user compare up to four microphones and quickly switch between them using radio-style push-button selectors. Like the Cherry Picker, it generates 48V phantom power internally to reduce switching pops to an absolute minimum, and there are no transformers or audio buffers in the signal path. To ensure a fair comparison, trim level controls allow the engineer to match the level.

www.radialeng.com

Get d:facto Straight

DPA has introduced the d:facto II vocal microphone, offering improved audio performance with linear frequency and phase, both on and off-axis. The d:facto II guarantees users 'exceptional DPA sound' with popular existing wireless systems such as Sony, Lectrosonics, Shure, Wisycom, and Sennheiser. Its state-of-the-art adapter system allows for seamless integration with these systems. The microphone is designed for sound reinforcement and recording applications, with simple plug-and-play features. DPA says that the d:facto II provides superior gain before feedback, while a robust three-stage pop protection grid built into the microphone removes unwanted noise. The cabled version, as well as the adapters for Shure, Sony, Lectrosonics, and Wisycom, are available this month. The adapters for the Sennheiser systems will be available in March.

www.dpamicrophones.com

Said The Raven: MTi

Slate Pro Audio used NAMM to launch its Raven MTi MultiTouch desktop production console, with DAW control and analogue monitoring. Its 27-inch LED-backlit HD LCD panel display adjusts from 10° to 30°, and has a 178° viewing angle. The 5ms response time is faster than motorised faders. The DAW controller software offers 24 simultaneous channels, and direct DAW touch – where the users finger becomes the mouse. User-customisable Raven Toolbars and floating tool palettes are a feature. The analogue monitor controller has high resolution and transparent, digitally-controlled analogue circuits. Four stereo analogue and digital sources are available, plus independent speaker, console headphone and studio headphone outputs.

www.slateproaudio.com

New Harman Products

The Harman brands had a busy NAMM, with various launches taking place. Soundcraft has introduced the Si Expression digital console range. Available in three frame sizes, Si Expression 1, 2, and 3, offering 16, 24, and 32 fader and mic inputs respectively, all three are capable of up to 66 inputs to mix by connecting any Soundcraft stagebox, or by connecting additional inputs over MADI or AES/EBU. The mixer is loaded with processing from BSS, dbx, Lexicon, and Studer, and features a colour touchscreen, iPad ViSi remote control, and Soundcraft FaderGlow. The DSP engine provides four-band parametric EQ, delays, gates and compressors on every input, parametric and 30-band graphic EQ, compressors and delays on all outputs, as well as four Lexicon stereo effects devices. Freely assignable fader layers allow inputs and outputs to be placed anywhere on any layer. JBL Professional launched the M2 Master Reference Monitor, which utilises JBL's new D2 Compression Driver, which uses two annular diaphragms and two voice coils to deliver extended high frequency response and very low distortion at very high sound pressure levels. The D2 is paired with JBL's new 2216ND Differential Drive 15-inch woofer, also with dual voice coils, incorporating a patented wire application that reduces power compression for linear output regardless of playback level.

"JBL Professional launched the M2 Master Reference Monitor…"

AKG has introduced a new line of digital automatic microphone mixers, DMM6 and DMM12. DMM12 offers 12 inputs, while easily adjusting the mic to line level. Its four line outputs (two stereo) are individually assignable for each input.

AKG has also released its updated C1000 S multi-purpose condenser microphone, which now runs on two AA batteries; and the successor to its B18 condenser microphone battery power supply, the B48 L. It features low noise level, frequency response of 20Hz-24Hz, an inverse polarity protection feature against incorrect battery insertion, and provides more than 20 hours of use on two AA batteries.

www.harman.com

Avid has launched the Pro Series line of AAX Native and AAX DSP plug-ins. Pro Compressor is based on the Avid System 5 console and Channel Strip plug-in, enabling the user to shape sound and enhance tracks. Pro Expander is also based on the Avid Channel Strip plug-in, giving the ability to give mixes more energy, gate noise and duck signals. Pro Limiter is a transparent-sounding limiter that enables the user to maximise the loudness of any mix, without distortion or harshness.

www.avid.com

Sonodyne has released the new SM 300 three-way studio monitor. The speaker has over 300 watts of power and is aimed at recording and post facilities, for near and mid field applications. It is the first Sonodyne product with internal DSP circuitry. Also just released is the SRP 500, the first from a new range featuring four models, SRP 400, 500, 600 and 800. These are an upgrade from the SM range, with customised HF wave-guides and internal DSP balance.

www.sonodyne.com

RØDE Microphones has announced a strategic alliance with UK-based audio accessory maker Rycote. Under the details of the agreement, RØDE will have access to implement the Lyre suspension element across a wide range of microphones and accessories, on an external and internal level. The RØDE VideoMic with Lyre onboard marks the debut product of the RØDE Rycote relationship. Its new form factor using the integrated Lyre suspension gives the microphone a lower profile and also features an upgraded all metal cold-shoe mount for increased rigidity. RØDE also announced the second of its iOS microphones. SmartLAV is a profesional grade lapel microphone is compatible with iPhone, iPad, and iPod Touch. Simply plug in the smartLav to the audio connector and set the device to record. Any recording app that uses the headphone connector will work, but the RØDE Rec app is, of course, recommended.

www.rodemic.com

What A Performance

QSC has launched AcousticPerformance, a range of professional, two-way, full-range loudspeakers, aimed at installed sound reinforcement applications requiring high power in a 'stylish' enclosure. All models features a three-inch voice coil compression driver combined with high-output woofers. Directivity Matched Transition (DMT) gives a uniform power response; the design approach matches the compression driver to the natural coverage angle of the woofer in the crossover region. Axisymmetric waveguides deliver consistent coverage with smooth and accurate reproduction on and off-axis. The speakers may be used in passive mode to minimise amplifier channel count, or bi-amp mode for greater control and performance.

www.qscaudio.com

Aphex Reaches 500

Aphex has introduced the USB 500 Rack, a four-slot API 500 Series rack. It can function as a USB interface, allowing users to connect their 500 Series modules to their preferred digital audio workstation via USB. Any configuration of processors installed in the rack can be applied as inserts into a DAW via USB. The Aphex USB 500 rack can act as a computer audio interface, or as a set of inserts into a DAW, always monitoring the DAW from the monitor section of the rack. It can also function as a conventional analogue rack.

www.aphex.com

Gaining Tracktion

Mackie has announced the sale and transition of Tracktion music production software to the Tracktion Software Corporation (TSC). TSC is led by three principals; Tracktion creator Julian Storer, James Woodburn, and Dave Christenson.

It was also announced the Tracktion 4 is now available. The latest version builds on the popular features of Tracktion 3, with a significant upgrade in that the Tracktion engine has been completely rewritten to be fully optimised for the latest operating systems – both Mac and PC – along with 64-bit processing, WMA, AU, and WASAPI support.

www.tracktion.com

Rupert Neve Designs has announced two new 500 Series modules: the 511 Mic Pre with Silk, and the 542 True Tape Emulator with Texture. The 511 incorporates the pre-amp circuitry from the 512, the sweepable high-pass filter from the 5012, and the power of a variable Silk circuit derived from the flagship Portico II Channel. The 542 is a follow-up to the Portico 5042. It includes genuine tape drive circuitry, and incorporates a number of new methods for adding analogue colour to tracks and mixes.

www.rupertneve.com

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www.riedel.net

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Lexicon Gunning For Gonzalez

Gabriel 'The Gun' Gonzalez, has installed a Lexicon MX400XL four-in/four-out reverb/effects processor and I-O FW810S 10-input/12-output FireWire Audio Interface in his home studio. Gonzalez is a trumpeter, percussionist, producer, and arranger who co-founded No Doubt with Gwen Stefani in 1986. He is currently with the BackBeat Brawlers, a reggae/ska band with jazz and soul influences.

Gonzalez and his musical partner, Mel Scott of Blue Room Studios, have recorded close to 200 television and film scores. "When we installed the Lexicon MX400XL and I-O FW810S, the difference in sound quality was immediately apparent not just to me but to everyone present," said Gonzalez. "The sounds we could achieve became cleaner, crisper, and more refined – in a word, stunning."

He is currently working on his new BackBeat Brawlers album, with the Lexicon components becoming an integral part of the production. "I've also done several film submissions recently. Over the years, I've tried a huge amount of outboard processing gear and the reverbs, effects, delays, and dynamic capabilities of Lexicon MX400XL and I-O FW810S hands-down blow everything else out of the water. There are tons of AD/DA recording interfaces out there, but only Lexicon has that trademark monitoring reverb that lets you monitor the performance with reverb while it's being recorded," said Gonzalez. "This really helps artists feel more comfortable and very often we'll get a better take. Also, the built-in dbx compression and EQ has proven to be invaluable. For my work this means that we can slightly compress and EQ the tracks while recording to get that sound we want instead of using all kinds of additional gear and effects afterward. In a project studio, it might be the reverse of how a lot of people do it but for me it makes recording easier and faster."
www.lexiconpro.com

Pro Audio specialist KMR Audio has supplied an SSL AWS948 console to Orgone Studios in Barnet, London. The studios are owned by heavy metal producer and musician Jaime Gomez Arellano, who has worked with Plan B, The Buzzcocks' Steve Diggle, Ulver, Mellow Candle, Incredible Hog, Iron Maiden, and Ghost. "I have used the AWS948 console before in Music 4 in Soho," said Arellano. "It's a beautiful desk. It works instantly with Pro Tools and the after sales support is amazing." The console joins a range of modern and vintage equipment in the studio, including Neve pre-amps, Lavry and Lynx converters, a Studer A80 tape machine, and outboard units by Manley, Crane Song, and more.
www.orgonestudios.com
www.kmraudio.com

Drum and bass Producer and DJ Break has bought a pair of EVE Audio SC208 monitors for his own studio in Bristol, UK. "If I close my eyes when listening through the SC208s it sounds like I'm in a large mastering studio," said Break. "I open my eyes again and cannot believe these speakers only have eight-inch cones. The depth and clarity is phenomenal for the price." The monitors are the latest model in EVE's two-way system series, starting with the smaller SC204. The SC208s are similar to the other two-way EVE monitors, but with a larger woofer and more powerful amplifiers. They feature a full frequency bass that goes down to 36Hz.
www.eve-audio.com

The EMI Publishing Studios have recently been fitted with Genelec active monitors. The site, on Rathbone Place in London, houses two UAD-2 powered Pro Tools mixing rooms, which surround an intimate live room. The studios are well stocked with equipment, but monitoring was not up to scratch. "We now have the 8240s in Studio B and a set of 8250s in Studio A," said Scott McCormick, EMI Engineer. "Both studios can be acoustically difficult, but the Genelecs were a massive help – they just work."
www.genelec.com

Avid At Abbey Road

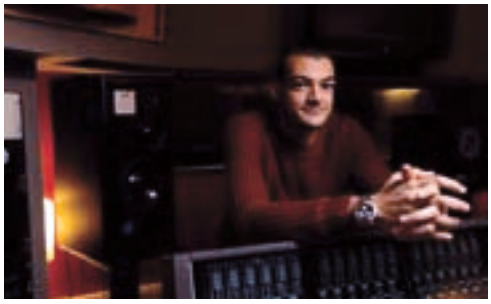
Avid and Abbey Road Studios have announced a studio-wide upgrade of Avid's flagship music and audio post production workstation to Pro Tools|HDX. The studios have used Pro Tools|HD for a significant period, but the upgrade to the more powerful HDX cards and HD Series audio interfaces will enable faster performance and improved sound quality.

"The accomplished artists and producers that use our facilities expect sonic excellence and the very best tools to work with their recordings. This means we need to use the most up-to-date, highly specified, and intuitive recording systems available to us," said Simon Campbell, Head of Technical Services at Abbey Road Studios, "Upgrading to Avid Pro Tools|HDX has enabled our clients to run larger sessions at high sample rates with as much plug-in processing as required, while operating faster than ever."
www.avid.com

It's Q-Time

The Music Producers Guild has held its second Q-Time event at The Hospital Club in London's Covent Garden. Nearly 100 people attended the debate on pressing issues affecting music producers, artists, recording engineers, mixers, and all those involved in the production of recorded music.

The panel comprised producer Jake Gosling; producer, songwriter, and DJ Tommy D; producer and manager Ros Earls; music academic and author Andrew Dubber, and Nude Records creator Saul Galpern. BBC 6 Music presenter and singer/songwriter Tom Robinson moderated the event.
www.mpg.org.uk



Dean Street Updates

Soho's Dean Street Studios has installed a pair of ATC SCM50 monitors to replace the previous pair in Studio 1. The SCM50 ASL active monitors have recently been modified to include an upgraded tweeter and enhanced port profile. "It's a pleasure to have the SCM50s back in Studio 1 here at Dean Street Studios," said Studio Manager Jasmin Lee. "We see ATC as a top end monitoring system and are happy to invest in their growing reputation."

The new monitors were installed following requests by engineer Austen Jux-Chandler that the ATCs removed from Studio 1 be replaced with a new pair. "The room has its own characteristics, and although we have only had the new set of ATCs for about a month, they are already sounding pretty incredible," said Jux-Chandler.
www.atcloudspeakers.co.uk

Golden Reel Nominations

The Motion Picture Sound Editors has announced nominees for the 60th MPSE Golden Reel Awards. "2012 was a spectacular year for sound," said MPSE President Bobbi Banks. "We offer our sincere congratulations to this year's Golden Reel nominees who, once again, have astounded us with their creativity and artistic excellence."

Nominations for Best Sound Editing: Sound Effects and Foley in a Feature Film are: *Argo, Django Unchained, Life of Pi*, Marvel's *The Avengers, Prometheus, Skyfall, The Dark Night Rises* and *The Hobbit*. Best Sound Editing: Sound Effects, Foley, Dialogue and ADR in an Animated Feature Film nominees are: *A Cat In Paris, Brave, Dr Seuss' The Lorax, Frankenweenie, ParaNorman, The Pirates! Band of Misfits, Rise of the Guardians* and *Wreck-it Ralph.*

Best Sound Editing: Dialogue and ADR in a Feature Film nominations go to: *Argo, Beasts of the Southern Wild, Life of Pi, Lincoln, Moonrise Kingdom, Silver Linings Playbook, Skyfall* and *The Hobbit*. Nominees for Best Sound Editing: Music in a Feature Film are: *The Cabin in the Woods, Argo, Django Unchained, Life of Pi, Lincoln, Skyfall, The Dark Knight Rises* and *The Hobbit*.

Best Sound Editing: Music in a Musical Feature Film nods go to: *Joyful Noise, Les Miserables, Pitch Perfect* and *Rock of Ages*; while Best Sound Editing: Sound Effects, Foley, Dialogue, ADR and Music in a Feature Documentary nominees are: *Bully, Climate Refugees, Jiro Dreams of Sushi, Marley* and *Searching for Sugar Man.*

Best Sound Editing: Computer Episodic Entertainment nominations went to: *Battlestar Galactic: Ep5 'Blood and Chrome', Cybergeddon, DRONE, H+ The Digital Series: EP28 'African Aid', Halo 4: Forward Unto Dawn*, while nominees for Best Sound Editing: Computer Interactive Entertainment are: *Call of Duty: Black Ops 2, Halo 4, Resident Evil: 6, Spyro: 'Skylander Giants',* and *World of Warcraft: Mists of the Pandaria* Cinematic Trailer.

Best Sound Editing: Long Form Dialogue and ADR in Television nominees are: *Coma, Game of Thrones, Season 2: 'Valar Morghuils', Steel Magnolias, The Newsroom: 'We Just Decided To',* and *Titanic: 'Mini Series 4'.*

The full list of nominations is available on the MPSE website. The ceremony will take place on February 17 in LA.

www.mpse.org

Technicolor Spies

Post production sound for the recent BBC mini-series Spies of *Warsaw*, directed by Coky Giedroyc, was carried out at Technicolor's sound facility in Perivale, London. Supervising Sound Editor Harry Barnes and Effects Editor Martin Cantwell handled the sound design.

The sound mix was carried out on Technicolor's main TV stage, Theatre Two, by Re-Recording Mixer Richard Straker. "From speaking to Coky before the mix, it was clear that she was after a bold soundtrack to go with the filmic style grade. Coky allowed us the freedom to try out different ideas during the mix, and we were all very happy with the end result."

www.technicolor.com

Electric Flow With Marquis

Electric Entertainment has used Marquis Broadcast's X2Pro Audio Convert on workflow for the production of US television series *Leverage*. Electric Entertainment, which produces the popular drama, has recently developed and streamlined its workflow and now edits all the content in house, at its Hollywood-based facility, using Apple's Final Cut Pro X and Marquis' X2Pro Audio Convert for audio finishing.

"We shoot many audio tracks," said Brian Gonosey, Editor on Leverage. "X2Pro takes the FCP X XML and lets us take all the audio tracks into Pro Tools. Marquis' solution uses BWF metadata to ensure the labels remain the same as when the files were recorded throughout the workflow, making it easy to find and access any audio track at the audio workstation."

www.marquisbroadcast.com

audioEngine Acquisition

US audio post-production facility audioEngine, which has studios in New York and Phoenix, has been acquired in full by founder Bob Giammarco. The company's remaining founding partners – Tom Goldblatt, Rex Recker, and Brian Wick – will remain with the company, continuing in their current roles as senior mixers and Chief Engineer respectively.

"My primary mission has always been maintaining the high quality of our work and our facility, as well as making sure aE is a great place for our clients and our staff", said Giammarco. "As we considered the future of the business and how best to advance those principles, we unanimously agreed that this was the best move for my partners and for audioEngine."

www.audioengine.net

Dolby Laboratories has announced that Sony Pictures Home Entertainment, Universal Pictures and Warner Bros. Home Entertainment will encode thousands of films and television programmes in the UltraViolet Common File Format (CFF) using Dolby Digital Plus. UltraViolet allows consumers to use the cloud to download and stream their entertainment collections anytime, anywhere, for viewing on TV screens, personal computers, tablets, and mobile phones. Once the UltraViolet CFF launches later this year, these companies will deliver movies and TV shows with Dolby Digital Plus sound.

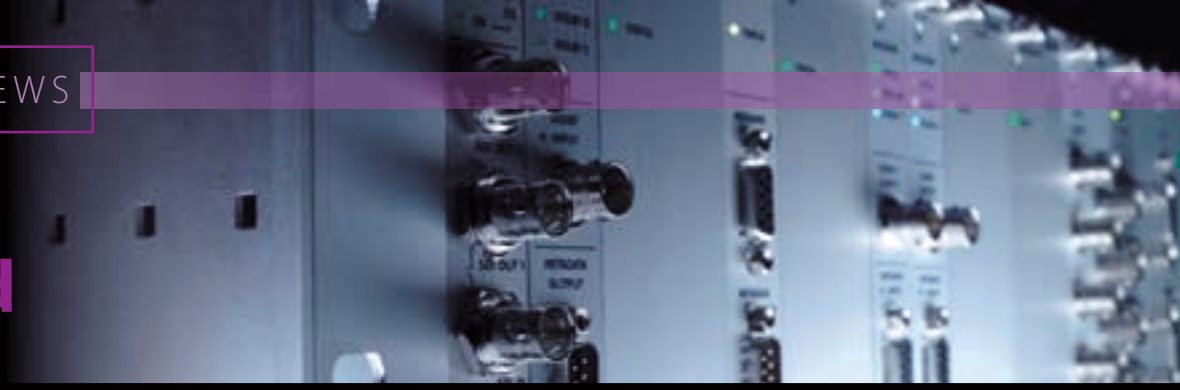
www.dolby.com

Miloco Studios has teamed up with SNK Studios to offer a complete range of audio post production services for the first time in Miloco's history. SNK's studios are based in newly-built premises on Tottenham Court Road, in central London. The company's services include sound to picture, voiceover recording, ISDN, TV and radio commercial dubbing, broadcast PR/radio days, audiobook production, computer game sound, bespoke music composition, and creative sound design. SNK has been working in post sound for nine years.

www.miloco.co.uk/snk

Pinewood Studios has announced the submission of a new £200 million planning application for expansion. The application, known as The Pinewood Studios Development Framework, comprises a substantial expansion of the existing Pinewood Studios by adding a total of 100,000 square metres of new facilities, including studios and stages, workshops, production offices, and streetscapes for filming. The application is now with South Bucks District Council for its consideration. The application documents will be available on the council's website within the next few weeks.

www.pinewoodgroup.com



TV Sound In Spain

Spain's national broadcaster TVE has made a significant investment in Jünger Audio's loudness control technology, which it is using to normalise the audio across a number of its television channels. TVE has been using Jünger Audio technology since 2003, but during 2012 it has rolled out High Definition broadcasting, and as a result upgraded its Jünger Audio B40 and B46 processors to incorporate SDI boards, making them more compatible with its existing Dolby products.

TVE has also bought an additional nine Jünger Audio frame-based C8000 systems, bringing the total number of C8000 systems in use at its broadcast facilities to 35.

The new equipment is primarily being used for play-out and for the editors' rooms at TVE's Torrespaña broadcast tower in Barcelona. A number of systems have also been installed in TVE's production centre in San Cugat del Vallés, Barcelona.

Alberto Palazón, Commercial Manager at Jünger Audio's Spanish distributor ASPA, which supplied and installed the new equipment, said: "TVE initially chose Jünger Audio equipment because it was looking for a transparent processor that could normalise audio across various channels without compressing the signal or distorting the sound. Jünger Audio's LEVEL MAGIC-based C8000 system proved to be the ideal solution as it didn't alter the original sound of the audio in any way."

"We are very happy with the Jünger Audio C8000 systems and with the upgrades we have made to our B40 and B46 units," said Paloma Sampedro, Head of TVE's audiovisual production unit. "With Jünger Audio, we now have a complete solution that allows us to decode SDI signals, process audio and sum and code again. This is a great solution and one that is incredibly easy to use. Jünger Audio's Loudness control technology is very stable and delivers high quality audio."

www.junger-audio.com

All India Radio (AIR), the national radio broadcaster of India and a division of the Prasar Bharati group, is replacing its existing news and radio automation system with the NETIA Radio-Assist 8.1 family of digital audio software programs. The installation of NETIA software at AIR's national broadcast station and across 48 local stations involves more than 1,000 workstations, and is being coordinated by Delhi-based systems integrator Progressive Infotech.
www.netia.com

A Yamaha CL5 has been installed on Germany's longest-running television talk show. Aired live since 1974 by Radio Bremen, 3nach9 is broadcast one Friday a month and features a wide range of national and international guests. The programme's technical production is handled by Bremedia, who have recently replaced the studio's analogue mixing system with a Yamaha CL5 console, two Rio3224-D I/O units, plus a Dugan audio mic mixing card and two MY8-DA96 analogue interfaces.
www.yamahacommercialaudio.com

Seattle-based broadcast communications and media company, Fisher Communications, has announced that Digital Nirvana's Monitor IQ Essentials 3.0 is the station group's chosen platform for compliance and loudness monitoring. "All of our stations will use Monitor IQ primarily for regulatory compliance and loudness monitoring of our off-air HD and SD DTV channels," said Lee Wood, Regional Director of Engineering for Fisher Communications.
www.digital-nirvana.com

Calrec has surpassed 100 installations of its Bluefin2 high-density signal-processing technology with a sale to BBC Wales. BBC Wales installed a 40-fader Artemis Beam console with Hydra2 audio routing capability in a newly renovated studio at its Cardiff, facility. It joins nine other Artemis desks and one Apollo desk – all equipped with Bluefin2 – in BBC operations throughout the United Kingdom.
www.calrec.com

Brit Broadcasting

Richmond Studios Productions, with Toby Alington at the helm, will be recording the BRIT Awards 2013 for broadcast, on February 20. Alington – who has worked on the Brit Awards broadcast for 19 years – and his audio team will mix the music for the live-to-air show from Floating Earth's state-of-the-art mobile recording unit, which is equipped with an SSL C200 digital console, linked to over 100 remote mic amps connected by fibre-optic cable, which provide the feeds to be mixed and broadcast live on television. This will be parked alongside the picture OB trucks at the o2 Arena in Greenwich, London, where the event is being held. Highlights this year include expected performances from Beyonce, Robbie Williams, Muse, and Emili Sande.
www.richmondstudios.com

SSL for Stamford

The Stamford Media Center, a wholly owned subsidiary of NBC Universal, recently installed a Solid State Logic C100 HDS Digital Broadcast Console, in its audio/video control room, replacing an analogue console. The new C100 HDS is used to handle the audio for *The Jerry Springer Show*, Maury, Trisha Goddard, and the *Steve Wilkos Show*. The studio produces 20 shows a week between these four titles. All four productions feature a host, guests, and a live audience of approximately 200.

"There is no rehearsal for any of the shows we produce here, so having a console that allows us to make changes while we are working on a show is a big advantage", said Rob Alexander, Senior Audio Engineer for Stamford Media Center.
www.solidstatelogic.com

Obama On Air

Barack Obama's second inauguration as 44th president of the United States took place on January 21 in Washington, with Bexel Equipment and Engineering Services supporting several major broadcast networks by providing clients with microphone packages, wireless intercoms, and headsets. Bexel provided Sennheiser MKH 416 and MKH 418 shotgun microphone packages to capture audio from the procession following the swearing-in ceremony and inaugural luncheon down, down Pennsylvania Avenue to the White House. The Newseum, a 250,000-square-foot museum of news and journalism, was the central location for media covering the inauguration, with Bexel providing wireless audio equipment and several RF wireless mic systems for use at the facility.
www.bexel.com

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Polish Theatre Polishes Audio

Optocore has played a vital role in the audio upgrade of Teatr Rozrywki, in the Polish city of Chorzow. Specialising mainly in staging popular musical productions, last year it underwent a full renovation, and at the end of 2012 completed the modernisation of its audio infrastructure.

The work was done by Piotr Kozlowski and Wojciech Grzadziel from integrators Pracownia Akustyczna, who have been responsible for all acoustical and electro-acoustical modernisation undertaken at the venue in the last few years. One of the main challenges was providing independent gain control from the FOH and monitor positions. "We have been using digital audio networks in our designs for almost ten years," said Kozlowski. "Many systems today use much more digital kit than analogue, so it is natural to want to use some kind of digital cable to glue all this signal jungle together."

The solution used at Teatr Rozrywki was an Optocore X6R-DualMic topology, with the consultants basing their system design on three X6R-FX-DualMic and nine X6R-TP-DualMic, creating 96 mic connections with independent gain control for every single channel. In addition, two X6R-TP-16LO interfaces were deployed as returns devices from the consoles. All X6R units were located in the stage rack.

For the FOH position, the theatre commissioned two Yamaha M7CL-48 desks and these are equipped with Optocore YG2 and YS2 I/O cards that allow direct connection of Yamaha consoles to the Optocore network. The same card combination was used with a M7CL-48 at the stage end. All three Yamaha consoles are able to control the Optocore preamps via the Yamaha Emulation Mode.

The third section of the system was installed in the amp room, where two Yamaha DME64N processors, fitted with YG2 cards, provide feeds to the L'Acoustics amplifiers, with a further Optocore DD2FR-FX MADI interface enabling the MADI connections.

www.optocore.com

ArcLight Cinemas' newest location in La Jolla, California, has installed a Meyer Sound system in its new wide screen, Dolby Atmos auditorium. Five Meyer Sound Acheron 100 screen channel loudspeakers are placed behind the curved 50-foot screen, with low-frequency energy supplied by six X-800C cinema subwoofers. Precise positional imaging is provided by 30 HMS-10 cinema surround loudspeakers mounted on the walls and overhead, with dual 500-subwoofers supplying bass management for the surround channels. The entire system is controlled by a Galileo loudspeaker management system with two Galileo 616 processors.

www.meyersound.com

The New York City Performing Arts Centre has recently undergone major renovations, where TiMax2 Soundhub was specified as the overall system processor to provide routing, EQ and zone management, plus audio localisation using its automated dynamic delay-matrix. The audio chain at the theatre was updated and now includes a Studer 5 Vista 5 console, which provides 42 channels of digital mixing and links via AES to the 48 in/out TiMax SoundHub matrix. The d&b loudspeaker system is driven by D6 and D12 amps fed via AES connections from the TiMax.

www.outboard.co.uk

Bush Beats Around Midas

Sound Engineer Mark Woodcock has recently mixed FOH for Richie Sambora's solo tour, and for long-time client Bush, using Midas digital consoles for both.

"I've always loved the MIDAS sound, but had been carrying another console for several years, basically because of the easy access to all the plug-ins," said Woodcock. "But then I found myself on a Pro6 when Bush was heading to Asia to do some shows with Evanescence. I've been on Midas ever since. I don't use anything externally, purely just the console."

Richie Sambora's show runs to over two hours. "You never know what's going to happen," said Woodcock. "I mean, there's a set list, but on any given night, he'll call an audible and everyone just has to be ready. With the POP Groups and VCAs on the Midas, I'm not in layers anymore, which makes everything quicker and easier."

www.midasconsoles.com

Scoring Work In Brazil

Walter-Storyk Design Group's international team has completed work on the Mineirao Stadium renovation in Belo Horizonte, Brazil, in preparation for the 2014 World Cup. WSDG was retained to design the acoustic program and complete audio and video systems for the entire stadium including all the public areas. "Our primary concerns focused on the level of sound comfort and intelligibility in relation to the RT60 reverberation time required to meet stipulated FIFA STI mandates," said Renato Cipriano, General Manager of WSDG Brazil. "Our sophisticated simulation programs enabled us to assess and 'auralize' the entire complex. We identified extensive sound reflections throughout the arena and concluded that acoustical absorption be installed at the inner ring of the audience sector to achieve the required STI values."

www.wdsg.com

Your Disco Needs JBL

The World's Largest Disco, the annual charity fundraiser event held at the Buffalo Convention Center in New York, this year used 84 JBL VerTec line array loudspeakers. "We had to move 7000 people with loud, bass-heavy sound in a room that's the biggest dance floor in New York State," said Ray DiBiase, President of Northeastern Production Systems, which provided the sound system for the event. The system comprised JBL VerTec VT4889 full size line array elements, VT4886 sub-compact line array elements and VT4880 full size arrayable subwoofers. "Getting even and consistent coverage was a must," said DiBiase. "It was also a total party atmosphere with everyone making a lot of noise, and the system had to be heard above all that."

www.jblpro.com

Horace Ward Gets Dangerous

Front of House engineer Horace Ward has been using the Dangerous Music 2-Bus. The 2-Bus is usually used in the recording studio, to bring in the tone, feel and headroom of an analogue console to digital mixes suffering from 'in-the-box' summing. Ward has found a way to use the 2-Bus to get a similar enhancement over his live mixes. "I don't understand how the 2-Bus has been in the studio so long but hasn't gotten to live shows," said Ward. "The feel is different with analogue and digital summing output. Using the Dangerous 2-Bus and summing stems you really hear the difference."

www.dangerousmusic.com

Snow Joke For Technomad

The largest ski resort in Northern Europe, SkiStar in the Åre municipality in northern Sweden, is giving skiers an interactive experience on the slopes with a new multi-zone entertainment system which uses Technomad advanced audio speakers. The Technomad loudspeakers, provided by systems integration company Watt & Volt Sverige AB, communicate the history of SkiStar and deliver atmospheric audio in eight locations. The synchronised system delivers audio originated through zoned DMX-controlled MP3 players.

www.technomad.com

Populaire Move For Yamaha

One of France's most culturally important theatres, the Theatre National Populaire (TNP), in Villeurbanne, has undertaken a comprehensive refurbishment which has seen a Yamaha digital audio system installed in the theatre's two performance spaces, the Grand Theatre and Petit Theatre. The Petit Theatre now features an Ethernet-based system, with a Yamaha DM2000 digital mixing console and DME63N and DME24N digital mixing engines. Testing proved the success of the design and a 'scaled up' version was installed in the Grand Theatre, where either a DM2000 or a PM5D can be used, depending on the complexity of the production.

www.yamahacommercialaudio.com

Liverpool-based rental specialist Adlib supplied a Coda Audio ViRAY system for the most recent UK tour by vocal harmony group The Overtones. In its largest format on The Overtones, 16 ViRAY speakers were flown per side, together with three SCV-F flown subs at the top of each array, with four Coda SCP-D dual 18 subs a side augmenting the bottom end on the floor. Coda C10 comparator amps and DN260 crossovers were used to drive all the Coda elements. Working on a sensor feedback system, this helped fine-tune the whole system.

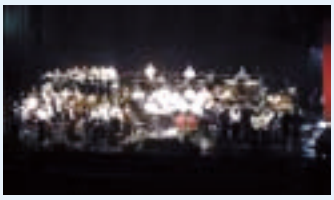
www.adlibsolutions.co.uk
www.codaaudio.com

A Midas PRO1, supplied and installed by South African Midas partner Prosound, took Durban's Elizabeth Sneddon Theatre digital for its Christmas production, Beauty and the Beast. "We installed a Midas PRO1 to ensure that this particular panto's scene changes, many of which have to happen almost instantaneously, will work," said Ryan Selby of Prosound. "The desk responds exceptionally fast," said Sound Designer Megan Levy. "The automation has greatly simplified the operation of an otherwise complex show. The PRO1 has proved to be the most theatre friendly digital console I have used so far."

www.midasconsoles.com

Rick Wakeman recently played two full orchestral shows in Buenos Aires, complete with a five-piece rock band, a choir, narration and solo singers. "The two orchestral concerts in Buenos Aires involved more than 90 channels, of which more than a third used DPA microphones," said FOH Engineer Ian Barfoot. "Although some of the equipment I wanted was not available in South America, I did insist on DPA microphones, especially for the orchestra. We needed so many that we had to ship the majority of them with us from the UK."

www.dpamicrophones.com



Clear-Com is sponsoring the John Lennon Educational Tour Bus by supplying the crew with its HME DX10 digital wireless intercom for its productions and workshops. The Bus is a non-profit, state-of-the-art mobile audio and HD video production facility that travels across the US and Canada, offering songwriting and multimedia production workshops to young people. In addition to recording musical performances, students learn how to produce and shoot music videos and documentaries. They are also trained to operate and manage the production equipment, including using the DX210 intercom.

www.clearcom.com

The Higher People's Court of Guangdong Province in China, famously the venue for the Apple and Shenzhen Proview iPad trademark dispute, recently updated its PA system. Reverberation is high in the marble-clad courtroom and multiple gooseneck microphones with high input gain make for an unstable feedback environment. Integrators Acejet Technology arranged for d&b EASE modelling of the courtroom, and then determined a system design using elements of the d&b E-Series and added a number of 8S loudspeakers from the d&b White installation range to be embedded in the walls of the audience area.

www.dbaudio.com

Monitor Engineer Michael Prowda used the Sensaphonics 3D Active Ambient IEM System on Radiohead's latest tour. "They understood the active ambient concept immediately and knew that they wanted it," said Prowda. Singer/songwriter Thom Yorke, guitarist Ed O'Brien and drummer Phil Selway all ordered the 3D Active Ambient. Bass player Colin Greenwood, who had never used in-ears before, started off with a pair of Sensaphonics 2MAX, and moved onto the ambient in-ears after a few shows.

www.sensaphonics.com

Boogie Woogie iLive

An Allen & Heath iLive digital mixing system is currently on a national tour of the UK with the musical Bugle Boy, which traces the life, career and mysterious disappearance of Glenn Miller. The system is based around an iLive-T112 Control Surface and an iDR-48 MixRack fitted with a MADI network card. "When the compact fixed-format iLive-T Series came along, I decided to take the plunge and purchase a system. It has eliminated a 20U rack of outboard at FOH, made the FOH footprint much smaller and made fit-up/get-out times so much quicker," said Andy Onion, Bugle Boy's sound designer and operator.

www.allen-heath.com

Sony's *Journey* Scoops Tec Award

The winners of the 28th Annual TEC Awards were announced January 25, 2013, in Anaheim, California.

The prestigious 'Outstanding Creative Achievement' prize for 'Interactive Entertainment Sound Production' went to Sony Computer Entertainment for its intriguing and innovative PlayStation 3 title, *Journey*, developed by thatgamecompany.

Keith Leary, Score Producer for Sony PlayStation told *Audio Media*: "We are absolutely delighted to receive this award. When Jenova Chen (Creative Director, thatgamecompany) first explained the story of *Journey*, and how it would have universal appeal and encompass all of life's emotions, but that the story would be communicated without dialogue, we realised we had an amazing opportunity to tell the story through music and sound. Strong collaboration between the Sony PlayStation Music Department, Composer Austin Wintory, and Lead Sound Designer, Steve Johnson, was key to our success. We worked together throughout the three-year development cycle to ensure the music and sound design complemented each other perfectly. Of course, Austin Wintory's beautiful, lyrical (and Grammy-nominated) music perfectly underscores the emotional arc of (your) *Journey*. The score adapts to how you play the game, with each player's *Journey* appearing to be custom-scored specifically for them. I am so proud of what we achieved working together as a closely integrated audio team.

"...we realised we had an amazing opportunity to tell the story through music and sound."
Keith Leary, Sony Playstation

http://tecfoundation.com/
http://thatgamecompany.com/games/journey/

Game Developers Conference 2013

The Game Developers Conference returns to San Francisco March 25-29, 2013 (Monday-Friday), claiming to be the world's largest and longest-running professionals-only game industry event attracting some 22,500 attendees. It features five days of lectures, panels, tutorials, and round-table discussions on a comprehensive selection of game development topics addressed by leading industry experts, and provides a forum where programmers, artists, producers, game designers, audio professionals, and business decision-makers can gather to exchange ideas and shape the industry's future.

Running alongside is the GDC expo that showcases game development tools, platforms, and services; plus the fourteenth annual Independent Games Festival where original games compete for the attention of the publishing community, and also the twelfth annual Game Developers Choice Awards – among the industry's premier accolades for peer-recognition in the digital games industry.

GDC's Audio Track is renowned by game audio practitioners the world over as a unique opportunity to share knowledge and experience from the real-world, and address the key aesthetic, technical, business, and logistical issues around music, sound, and dialogue development for interactive media.

Session highlights this year include:

AAA Audio Quality in a Mobile Indie Game: Holy Shield Case Study
Amaury La Burthe (AudioGaming)
This session will focus on the audio challenges often faced by indie productions when they have limited means and time, but high ambitions. Through practical examples spanning from conception to production of the mobile game Holy Shield (Journey to Hell), this session will show how past AAA experiences have been used to the benefit of the game. Live demos will demonstrate and give methodologies for effective, but simple, real-time mixing and buss design, music systems and in-tempo events, asset management, simple procedural audio, real-time special effects, and the methods used to produce original assets.

Crossing the Streams: Game Audio Rule Breakers of the Past Decade
Scott Selfon (Microsoft Corporation)
In the hectic world of game audio production, programming, and overall game development, it's easy for the audio creator's head to get buried in capturing and implementing the daunting spreadsheet of cues right in front of them. This talk challenges us to break free of audio as part of a 'post-production' world highlighting some of the unique and innovative audio developments of the past decade where the audio has turned around the equation, and instead been a key 'pre-production' component, driving the implementation rather than the other way around. While some of the illustrations will be well known, others include tricks and tips not seen since their initial demonstrations, challenging us to continue to push on that fourth wall and provide sound that not only matches the visuals, but provides surprises to the user.

Contextually Driven Interactive Music in SSX
Gordon Durity (Electronic Arts – EA Sports)
What would it sound like if a virtual DJ could take any user-provided music track and re-mix/re-arrange it in real-time, while syncing it with the game-play action of an over-the-top snowboarding game that involves racing, tricking, and survival? This is the exact scenario proposed to create the interactive music system for the latest SSX. This talk will take you through the creative, design, and technical considerations when coming up with an interactive music system that is context sensitive, audio artist driven, end user accessible, powerful, and flexible enough to provide a convincing, cybernetic music remix on the fly.

For full programme details click to www.gdconf.com

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To those of a geeky persuasion, watching TV programmes or even Ceefax (the BBC's now defunct teletext service) and the test card was not about what was on screen but the music playing in the background. Much of this would have been selections from library records, which are now recognised for their creativity as much as commercial recordings.

The copyright of library music is wholly owned by the publishers, which means it can be licensed without obtaining permission from the composer. This has made it a valuable resource for film and television producers working on a tight budget but who still need incidental music and a theme tune. Companies such as KPM Music (owned by EMI), Boosey & Hawkes (now Imagem Production Music), and Chappell, part of the Universal group, regularly produce many albums every year. Each contains a multiplicity of tracks, ranging from fully formed pieces that could be used as themes or underscores, to stings and stabs of only a few seconds duration.

"...general purpose functionality meant library music – also known as stock music – was regarded as not 'proper' music, and so less creative and interesting than commercially released tracks. The reality is very much the opposite."

Kevin Hilton

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In the past this general purpose functionality meant library music – also known as stock music – was regarded as not 'proper' music, and so less creative and interesting than commercially released tracks. The reality is very much the opposite. Because composers are not writing to a specific brief they have the opportunity to be more imaginative and experimental, as was the case when Delia Derbyshire and Daphne Oram, both leading lights of the BBC Radiophonic Workshop at different times, each produced challenging electronic material for library use.

More often library tracks have been orchestral or jazz-based and, rather than being produced on the cheap, were recorded in some of London's big studios – Abbey Road, Advision, AIR, CTS – by either leading full-time orchestras or ensembles put together from top session players of the day. Although the composers were credited on the albums, their names rarely appeared on credits for whatever production used the music.

Despite this, library music catalogues read like a Who's Who of British composers and arrangers, including Johnny Pearson, Johnny Keating, Alan Hawkshaw, and former Shadows drummer Brian Bennett. In creating a piece or sequence of library music the writer often has a mood, style, or genre of production in mind, such as tension, horror, romance, and so on. Regardless of the description on the album sleeve, producers can take a piece and use it for something the creator probably never considered.

This happened with a track called *The Awakening*, written by Johnny Pearson, which has been used as the theme to ITV's flagship news programme *News at Ten* since 1967. It was a last minute choice and viewers complained it was "too harsh". Certainly it is very portentous and perhaps better suited to a horror film but, once it was re-mixed to soften some of the more strident elements, it was accepted by the audience, which now associates the dramatic booming with the chimes of Big Ben and the big stories of the day.

Library music continues to be an important tool for TV producers and filmmakers. To distance themselves from the negative connotations of the old name, most publishers today prefer to use the term "production music", which still has a functional ring but implies the music is aimed at TV and film rather than just sitting on shelf in the hope it will be used one day (which was never the case anyway).

Visitors to this month's BVE Expo in London (February 26-28 at the ExCel centre) will have the opportunity to hear composers and music publishing executives discuss the business of production music during a series of sessions run by Audio Network. Founded in 1999 as an alternative to the traditional way of licensing production music, Audio Network pre-clears tracks for international use on different delivery platforms, with the user buying a renewable licence instead of paying royalties every time a piece is used.

This approach appealed to many composers, including the late Johnny Dankworth and his wife, singer Cleo Laine, who were followed into the Audio Network stable by Evelyn Glennie, Tim Garland, Terry Devine-King, and Paul Mottram. The company makes a point of recording its output at Abbey Road Studios with such as the London Philharmonic Orchestra, although its Deputy Managing Director, Chris Blakeston, acknowledges that modern digital recording and editing systems have given musicians the freedom to do more in their home studios.

During BVE, Audio Network's Director of Publishing, Simon Anderson, will discuss nets and bolts like copyright, while one of the company's founding composers, Chris Blackwell, who has drummed for Robert Plant as well as writing production music, will discuss the creative and technical aspects of his work.

Library music has long had a cult appeal to collectors and those with less mainstream tastes. Fortunately it is now easier to get hold of for those not in the production business but who want to own it in the same way they would the latest chart song. "We've had people who have contacted the producers of a programme because they liked a piece of music and then get passed on to us," says Blakeston. "They ask whether they can buy a CD with the track on it, so now we've made tracks available on our website that can be downloaded for 79p."

Geeks might gnash their teeth at something once so specialised being now so widely available, but it does mean library/stock/production music is finally getting the recognition it deserves.

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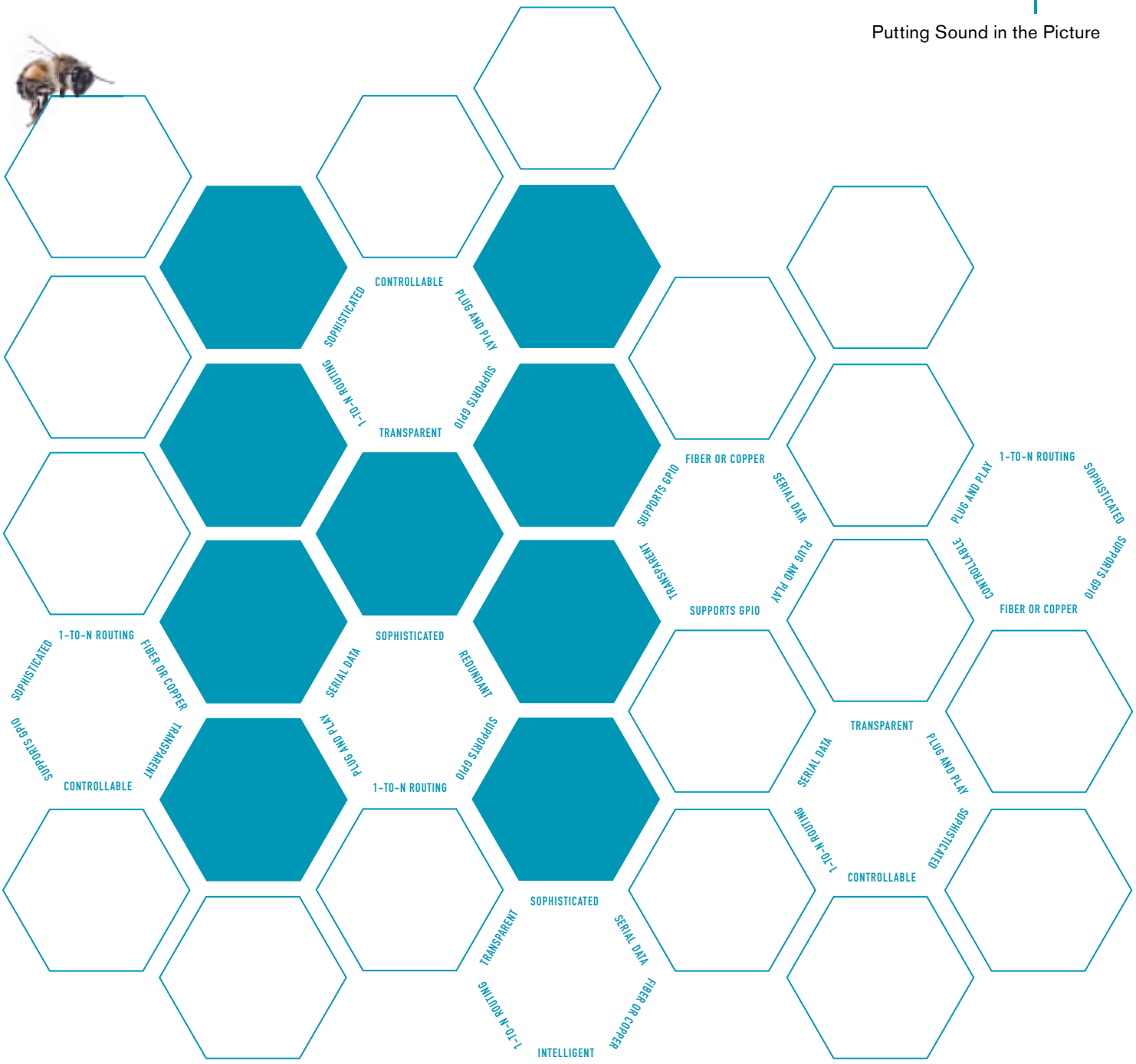

Hydra2 forms the routing backbone for both the Apollo and Artemis consoles.

These desks are just one type of client capable interfacing with Hydra2, which provides an enormous 8192^2 synchronous router at its core. A range of I/O boxes can be connected via high density 512 bi-directional copper or fiber connections, while mini-GBIC connectors keeps connections simple and installation easy.

Highly scalable, Hydra2's router is a TDM-type router, capable of 'one-to-many' routing and truly point-to-point. This allows for enormous networks with highly flexible topologies involving multiple routers, inputs/outputs, control rooms and studios. And with adaptive, intelligent software which automatically recognizes changes to the network and updates all its clients, it's also a very social network.

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HYDRA2

INTERNATIONAL MEDIA COMPLEX

Dubai Media City

Since its official opening in January 2001, Dubai Media City (DMC) has grown to become a thriving business community hosting both global and regional media companies. DMC offers media companies and independent media professionals a pro-business environment that enables them to operate with collective synergy and freedom while enjoying free zone benefits including 100 per cent business ownership and tax-free income, as well as value added services such as networking opportunities, venue management services, industry building programmes, and government services.

Most recently, Dubai Studio City and MBC Group have signed a strategic partnership agreement, for enhancing content creation for TV and film production in the Middle East and North Africa. MBC group will start its new production facility at one of the prime sound studios at Dubai Studio City.

Dr Amina Al Rustamani, CEO, TECOM Business Parks, commented on the partnership saying: "It is with no doubt that such a partnership with a leading media group that has a long track record of success in the content creation industry like MBC Group, will inevitably serve the best of developing and enriching the TV and film content. This step will also help to enhance and boost the media environment so far created in Dubai. This strategic partnership will attract and develop local competencies and expertise from various specialties of the production process, which will enable Dubai to become the perfect destination that meets the needs the TV and film production industry in the Middle East."

Sam Barnett, CEO of MBC Group, stressed the importance of this step as a milestone in a long track record of 21 years of success of the group, saying: "MBC Group today strengthens its expertise in media content production, with its new production company O3 production at Dubai Studio City, where the City is equipped with the latest facilities, technologies, and talents, that match the efficiency and capacity of the largest international production studios. This will contribute a lot to the development of local content, whether it is entertainment or education content, and promotes it towards a new dimension of success, especially with the Stargate global production technology of simulation visual multi-dimensional, that is considered one of the added values to the MBC."

Fadi Ismail, General Manager of O3 Productions, a member of MBC Group, praised the practical element of this partnership, highlighting that having an advanced production infrastructure represents a major success factor in content creation industry.

The newly completed sound stage, 15,000 sq. ft in size, is designed on the latest specifications and smart technologies. In addition, two more sound stages (25,000 sq. ft each) are currently being developed and will be operational in late 2013. The sound stages are complemented by workshops and backlots that will streamline the production process in the Emirates. The major impact of this will be a strong business case for production support service companies to relocate to Dubai Studio City, as the increase in content creation taking place will provide a valuable source of demand for production services.
www.dubaimediacity.com

STAGING & EVENTS

Creative Technology Dubai

Creative Technology Dubai brings the biggest acts and sporting events to the UAE. Video Technician, Nick Toale, explains how using the latest technology is key for high profile live events: "Creative Technology provides highly sophisticated and professional audiovisual staging services to the special events market across the globe. Based in London, England, with a large regional operation in Dubai, for more than 25 years the company has been serving geographic regions through local offices in all major continents.

"Clients served by Creative Technology Dubai include international brands, hotels, rock groups, and major sporting events: most of the world's latest and greatest companies and stars have probably used equipment supplied and managed by Creative Technology at some stage in their careers.

"The high profile nature of our events demands the highest quality equipment. We select it on a worldwide basis according to how appropriate it is for our purposes and which equipment gives us the best value. We cover jobs ranging from quite small venues in hotels to the largest rock events and major sporting events like the Dubai Grand Prix.

"So the equipment we use has to be extremely flexible and we need to have a good stock of devices that will allow us to meet any eventuality, whether that is suddenly needing to change a signal format or being able to send signals hundreds of metres to a remote display. We also have to consider local support from dealers and head office to counter any sudden problems that may occur, which naturally happen whilst we are at an event and during antisocial hours."
www.ct-group.com

INTERNATIONAL EXHIBITION

PALME Middle East

Palme Middle East has announced that it will host Soundcheck, a dedicated product demo area, for the first time when the show's 2013 edition opens for trading at the Dubai International Convention & Exhibition Centre on May 21-23.

In a dynamic response to exhibitor requests for a working environment in which to showcase their new technology, organisers Informa Exhibitions have created Soundcheck, which will be located in a purpose-built (and fully air-conditioned) temporary structure in the plaza area outside the Ibis Hotel.

Announcing the move, Exhibition Director, Richard Brook, said, "This will provide exhibitors, especially manufacturers and distributors of audio equipment, the opportunity to present their products in a live environment alongside the show.

"Taking this feature to a purpose-built outdoor environment means there's more flexibility for exhibitors to show off what their kit can do with minimal impact on other participants at the show."

Timetabled slots in Soundcheck are limited, and each of the exhibitors taking part will receive one morning and one afternoon session on each of the show's three days. The timetable will be heavily promoted in advance of the show.

www.palme-middleeast.com

PALME MIDDLE EAST

PUBLIC THEATRE

Souk Okaz

Saudi Arabia – Sennheiser Group has announced that its Middle East regional office has partnered with Modern Lifestyles to set up a state-of-the-art audio system for Souk Okaz public theatre in Taif, Saudi Arabia.

The historic Souk Okaz was established 12 centuries ago, and has been revived as a tourist resort in Taif, Saudi Arabia. Now celebrating its sixth anniversary year, Souk Okaz, which was re-established by Makkah Gov. Prince Khaled Al-Faisal, is an annual event featuring a variety of cultural events including seminars, poetic evenings, and folk performances. At the heart of Souk Okaz is the public theatre, boasting a seating capacity for over 3,000 people. The modern day auditorium, built in the historic marketplace, is the venue for poetry and storytelling competitions, which are the highlight of the cultural event.

Eager to ensure the very best listening experience for the visitors to the fair, but limited by minimal experience in the field of audio engineering, Ascon Co. Ltd., the contractor for the project, turned to Modern Lifestyles, a Jeddah based distributor specialising in audio and entertainment solutions.

Modern Lifestyles proposed a solution by Sennheiser Middle East that included a DAS Audio AERO 8-A Line-Array system and Sennheiser G3 wireless systems with antenna distribution.

Commenting on the factors behind the selection, Majd Al Khattib, Technical Director at Modern Lifestyles said, "With the poetry and story telling competitions taking centre stage at the fair, Saudi Diyar and Ascon had set extremely high expectations of the audio systems. The solution had to be customised to handle speech and poetry with the utmost clarity. These requirements, coupled with the complexity raised by the tent-like structure, meant that we needed to select a vendor with both the best product and the most professional support services."

EDUCATIONAL FACILITY

SAE Dubai

A Solid State Logic AWS 948 Hybrid Console/Controller was chosen to upgrade the primary audio recording room, Studio 7, now named the SSL Studio, at the SAE Institute in Dubai.

As a part of the worldwide network of over 56 SAE facilities, the Dubai campus offers a variety of programmes in media production, including audio engineering, 3D animation, multimedia, game design, digital filmmaking, and music production.

SAE Dubai's audio programme revolves around seven studios, each having a different level of sophistication and primary application. The SSL Studio connects to the SSL Live Room, a moderate-sized room that can comfortably house a quartet of musicians. The acoustics of the room are designed for picking up the dynamic response of instruments, especially drum kits and loud instruments.

http://dubai.sae.edu

VENUE

Abu Dhabi Heritage Theatre

A Midas PRO6 console has been supplied to Abu Dhabi's iconic Heritage Theatre, making it the latest high-profile venue in the Middle East to invest in a Midas console.

Chicco Hiranandani, Business Development Manager at Midas's Middle East distributor NMK commented: "The Heritage Theatre joins a prestigious line up of venues that have specifically chosen Midas solutions for their reliability, redundancy, and most importantly, audio quality. These venues include the Raha Theatre, Abu Dhabi, the Qatar National Theatre, Doha, as well as the Royal Opera House in Muscat, Oman."

The Heritage Theatre is a 550 seat multi-purpose venue that is used for drama, dance, lectures, and conferences. The latest supply of the PRO6 sees it join other UAE venues such as the Emirates Palace Hotel in Abu Dhabi, which is currently using a Midas XL4.

"Midas is enjoying increasing popularity in the Middle East, as it increasingly becomes a destination for international events," comments Hiranandani. "The Abu Dhabi Heritage Theatre is an iconic venue in the capital of the United Arab Emirates. Numerous community events are held in this venue, and now the technical team can manage these shows with an excellent digital platform."

"The PRO6 has many of the features of the flagship XL8, boasting a range of features that make it an indispensable desk for busy, professional venues," explains Brand Manager for Midas, Richard Ferriday. "The PRO6 is a compact yet powerful platform that offers up to 64 simultaneous input processing channels, as well as six POPulation groups and a configurable 'Area B' feature that enables two operators to work in collaboration."

The Oscar Sound Showdown

By Jo Fletcher-Cross

Yes, it's that time of year again – the 2013 Academy Award nominees have been announced. Movie starlets are choosing their gowns, Seth MacFarlane is getting ready to host the event (sample tweet from Mr MacFarlane @ SethMacFarlane: "This year's Oscars will be like nothing you can imagine. Unless you can imagine three hours of, like, people getting awards and stuff…"), and somewhere out there, some sound guys are getting their best black jackets out and wondering if they should prepare a speech. But which sound guys?

Nominated in the Sound Editing category are Erik Aadahl and Ethan Van der Ryn for *Argo*, and *Django Unchained* Sound Editor Wylie Stateman. Eugene Gearty and Philip Stockton have also received a nod for their work on *Life of Pi*. "Ang always makes the journey full of wonderment. It is an honour to be part of such a special film that will still be recognised 100 years from now for all its beauty," commented Gearty. "To be recognised with all the other great sounding films is icing on the cake. I am truly humbled."

Paul N.J Ottosson received a Sound Editing nomination for *Zero Dark Thirty*, as did Per Hallberg and Karen Baker Landers for *Skyfall*. "It is extremely humbling to be nominated," said Karen Baker Landers. "You are nominated not only for your own work, but for the work of your entire crew and you always need to remember that. It also makes you want to step up your game. The nomination comes with the responsibility to be as good as it says you are.

"*Skyfall* has a little bit of everything in it from a sound perspective – from the atmospheres to the realistic sound effects to the emotional design. It's a film that offers the audience a full palate sonically."

Nominees for the Sound Mixing Academy Award are John Reitz, Gregg Rudloff, and Jose Antonio Garcia for *Argo*; Ron Bartlett, D.M Hemphill, and Drew Kunin for *Life of Pi*; Andy Nelson, Gary Rydstrom, and Ronald Judkins for *Lincoln*; and Scott Milan, Greg P. Russell, and Stuart Wilson for *Skyfall*.

Unsurprisingly, given the buzz around the audio work on the film, Andy Nelson, Mark Paterson, and Simon Hayes were nominated for *Les Miserables*. Simon Hayes spoke to *Audio Media* in December 2012 about his work on the musical; when the nominations were announced we asked Mark Paterson why he felt the sound mixing deserved an Academy Award nod.

"There were so many people involved in making this an Oscar noteworthy sound mix and it has taken the highest quality work at all stages to achieve it," Paterson said, "It starts with those live recordings." Director Tom Hooper wanted to capture live performances from his cast, instead of using pre-recording or ADR. "The work that Simon Hayes and his team did is unbelievable and the results were truly special, especially when you consider what they were up against with rain machines and everything else that is noisy on a film set. Then you have a bunch of recordings that have captured an amazing performance but have varying tempos. That leaves you with the challenge of recording a score that will work with the performance and then making it all work to the picture. Then you have have to find a way of weaving the real world into it all. The list of challenges goes on."

"There were so many people involved in making this an Oscar noteworthy sound mix and it has taken the highest quality work at all stages to achieve it…"
Mark Paterson, on *Les Mis*

Normally a film like this would have a huge amount of ADR work to do, and this is when the sound mixing team would traditionally be busiest. Obviously things were a little different on *Les Miserables*. "People often ask me about how we coped with so little ADR, and my answer is always that we had such great recordings to work with," explained Paterson. "This meant that the amount of ADR needed for 'technical' reasons was very little. In fact, almost non-existent. The main challenges really came from the chorus elements, which were also sung live. There was a fantastic amount of separation for us to work with, but you can imagine the continuity difficulties with having often 20-30 people singing on set. There were areas where we recreated these elements, mainly to use in conjunction with the live recordings, but also to help with width across the screen. What is great is that any chorus ADR, whether it be melodic or shouting, was recorded by the actor or actress that played the part on the day. For the very small amount that is in there, it has been kept as authentic as possible, which is rare."

Paterson admitted that he found some aspects of the work personally challenging. "With the mixing of the sound effects, normally it's all about details and having a presence of the real world, even a heightened real world. Things were a bit different on this movie, and it wasn't until I'd been down the traditional road for a while that I accepted that. It became quite clear fairly early on that it was easy to be distracted by unwanted sounds during such intimate performances.

"We also had to scrutinise every sound effect in much more detail than normal to be sure that it worked in harmony with the music. An example is the metal candlestick holders that the bishop picks up. It happens right on the sustain at the end of a song so the metal ringing effect is pitched to the same note and extends that sustain a little. That way it can be there but is almost part of the music."

The Academy Award ceremony will take place on February 24 in Los Angeles.

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A Very Grand Design

CineLab SoundMix, Moscow

CineLab is a very impressive audio post production facility. Whatever way you look at it, builds like this are rare and deserve celebration. Paul Mac goes on a tour of this latest Russian marvel...

We should be absolutely clear from the start that CineLab SoundMix is a dedicated audio post production facility. Why do we have to make that clear? Well, because the basic room list goes on a little longer than sound people are used to. Also, the kit, the build, the quality of finish, and the quality of the staff, are all very special. Indeed, White Mark Limited, the acoustic and architectural consultancy entrusted with this project is no stranger to large projects, but David Bell, White Mark's Managing Director, says SoundMix has certainly been its biggest project to date. And it has to be said from the start that the results are pretty spectacular.

There are four main mix rooms, two ADR studios, seven editorial rooms, a dedicated Foley studio, and the 'Universal' studio (more like a music facility for soundtrack recording and mixing), and much more.

The studio is located on the North West outskirts of Moscow, Russia. It's a beautiful city, so there's lots of potential outside the studio walls, as well as inside.

I was given an extensive tour of the facility by the Managing Director of SoundMix, Vadim Nerukhov; the Managing Director of White Mark Limited, David Bell, and the CEO of CineLab, Denis Glinsky.

The Tour

SoundMix has four main mix rooms. The first three are equipped with Pro Tools and Avid System 5 surfaces. The two largest, M1 and M2, have 96-fader System 5 frames and can mix over 600 channels each. M3 has a 48-fader System 5 surface with 184 channels to mix. All three rooms have recently gained Dolby Premier certification. M4 is more of a pre-mix suite and has an Avid Icon surface installed with 5.1 monitoring.

M1 has both 35mm and DCP projection, while M2 has DCP (35mm via telecine). Both now have colour-grading facilities in too.

All the mix rooms are an impressive size, especially M1 and M2, which both have generous (and luxurious) seating provision in front of the mix position, complete with bass-shakers. The decor is based around a deep

"First of all, it's service... Service, service, service... And quality of service... And people – the people who provide this service and who provide the 'conversation' with the clients..."
Denis Glinsky, CineLab CEO

SoundMix now has its Premier License for all main mix rooms.

>

CineLab SoundMix M4, Pre-mix room – ICON control.

red that apparently caused initial concerns when suggested, but has since proven itself. The rooms are comfortable, attractive, but also very functional and professional.

There are two ADR studios at SoundMix, both are a good size with large isolation booths, Pro Tools systems, and Euphonix Artist Series controllers. The two are orientated differently so the studio can cater for those who prefer the talent to be either to the side or in direct line-of-sight. Monitoring is 5.1 and a range of pre-amps are available in each studio, including Summit Audio, Grace Design, and TL Audio.

According to David Bell, White Mark's aim in the ADR studios was to make the control room/booth arrangement "As intimate as possible whilst acknowledging that in Russia, and a lot in America, they like to do it with a separate control room." There are large windows between the two, incorporating a folded glass design that avoids a potentially damaging specular reflection from what would normally be a large flat surface.

What's particularly striking about the ADR studios (and other rooms around the complex) is that space, while plentiful, is not wasted. The room feels comfortable, not cramped.

Foley-Fantastic

SoundMix also has its own dedicated Foley facility. It's a large space and incorporates a range of design features that may well make it one of the most sophisticated purpose-built Foley rooms anywhere. This is one of the last areas of SoundMix to be finished and was still under construction when I visited. It is also the only studio area in CineLab not built on an isolated foundation slab, simply because this was the best way to achieve the noise specs and acoustic performance required of the Foley room.

White Mark undertook an extensive study of Foley facility requirements as part of the >

CINELAB – THE BIG PICTURE

CineLab started around eleven years ago as a private company with four major investors. At that time, Denis Glinksy was running a sales company dealing in production lighting, and supplying, amongst others, CineLab Rental – the first company in the group. He was made aware early on that CineLab had ambitions to 'build a film studio' and that it already had the resources and real estate to do great things.

Eventually, Glinsky closed his own company and joined CineLab. "It was my dream to build a studio," he says. "It became more and more real... Now we have ten comanies in our group, and SoundMix is the diamond."

Step by step the CineLab created companies to cover a variety of film production services. Each time, Glinksy used his determination and thorough approach, along with the faith of CineLab's investors, to claim a significant and credible stake in each area.

They opened CineLab Color – the laboratory. Then they started CineLab Digital, which specialises in color correction and picture post production. After that came CineLab Logistic (print distribution, etc) and the purchase of a telecine boutique in downtown Moscow, now CineLab Lounge. Other companies are CineLab 35/16 (camera rental), CineLab VFX, CineLab DataDelivery (satellite data delivery to cinemas), and CineLab Production (film production management and administration). CineLab production can take advantage of the network of CineLab services to help deliver on its clients' creative ambitions, and so highlights the breadth of expertise and quality that the group has achieved.

The sheer entrepreneurial spirit of the company, its investors, and Glinksy himself was aptly demonstrated in the creation of Color, the company's film laboratory. Initially Glinsky couldn't find the right person to start up the lab, so decided to do it himself. For half a year he was tutored, part time, by a professor from the Moscow Film Institute, then with a basic plan in-hand got the laboratory built. Initially, there was no business – a more established competitor had it all and customers were not keen on changing. However, knowing the conservative nature of the film industries, Glinksy did not waver. The lab spent half a year just doing tests (and paying for salaries, rent, film stock, and chemicals) until a client came to them with a "difficult situation". CineLab come through for them, and the laboratory was established.

"Our supervisor understands the cinema business very well and is a very clever man. He is not a cowboy, and has not tried to get next day results. We always have half a year... even a whole year, to run each facility properly."

By that measure SoundMix has done incredibly well. When I visited it wasn't even officially opened but had been working on projects for almost half a year already. A good thing too. It's probably the biggest post production sound complex in the country, and the question of whether there is enough business to be had, must be asked.

Glinksy responds with a refreshing outlook: "I always think it depends on quality of service, not how big the market is. If you have loyal clients, you have a market. Some of our clients were also small 11 years ago and we've grown together. When we became quite a big company, big production companies also worked with us – I hope with pleasure.

"When we started to build SoundMix I explained to our shareholders that this part of the business should be our face, and requires substantial investment. It will close a ring of services... They need to see all the figures from all the companies and how they change now the group includes SoundMix... Because this has a big plus to the other companies."

Yes, you heard correctly. Glinksy sees the value and success of this individual facility partly defined by additional value it brings to other companies in the group, not simply by isolated financial performance. He also sees the value in a loyal and long-term satisfied client base to isolate the group from the fickle nature of the film industry's fortunes. "Of course we would like to be the best – this is normal. We have never aimed to be a monopoly in different businesses. That is stupid. We try to be the best.

"First of all, it's service... Service, service, service... And quality of service... And people – the people who provide this service and who provide the 'conversation' with the clients... It is clients, and your relationship with your clients. If you have satisfied clients then you will be successful."

Glinsky always has his eye on the next stage for Cinelab. However, he makes it a condition that each new endeavour has to be handed over to the right person before he will move onto the next project. That man is Vadim Nerukhov, Managing Director of CineLab SoundMix.

CEO Denis Glinsky (left) and Managing Director Vadim Nerukhov (right).

design and consultation process of the CineLab space, in particular attending sessions with acclaimed Foley Artist and Sound Designer Nicolas Becker.

One thing that emerged was a variety of preferences when it came to 'control rooms or not'. In the end, the CineLab facility was designed so either request could be satisfied with a movable system, including an analogue SSL console.

For acoustics, there was still more variety in opinions. In many instances a dead space was required for either free-field emulation or to allow post processing. However, there was also a good case for engineering real-world early reflections with some basic adjustable acoustics even if the reverb tail was added later on. In one area of the Foley room there is a motorised rotary element in the ceiling that has variable reflectivity/absorption, plus both light and heavy curtains for further control of early reflections.

Floor traps were the subject of much debate, but essentially the aim was to position a variety of floor elements so that common floor progressions (floor types that often follow each other) were close together, including those close to specific Foley room areas; for example, appropriate floor elements near the permanent kitchen and bathroom areas.

There are a lot more specific mechanisms and ergonomic considerations going into the Foley area than we have space to cover here – tuneable flooring, for example, inspired by an accidental use of square nails, but now refined with a turning-screw system. Suffice to say that when it is completed, the Foley area will be the envy of studios all-over and will may well move the art and science of Foley spaces forward, to the benefit of all.

Music Makers

The 'Universal Studio' is a self contained facility inside SoundMix that is based on a more traditional music studio model with a large orchestral live area (with Steinway D-274), two isolation booths (one high, one low absorption), plus a control room with a 48-fader System 5 console, Pro Tools, and a bespoke 5.1 Exigy monitoring system. Obviously its uses are many, but soundtracks spring to mind immediately, as well as the usefulness of a good-sized recording space for things like crowd recordings and so on. In this latter example, a generous provision of heavy curtaining should provide much of the absorption necessary to make this practical.

However, as a live room it was also felt that a more finely adjustable acoustic might also be a nice thing. This starts with a control system, even for the curtains, so that specific areas of the room can be deadened. This is in conjunction with slatted ceiling elements that can be rotated, revealing absorbent material behind, as well as other portable elements.

Settings for the variable acoustics can be saved and recalled. Vadim Nerukhov suggested that this system might be more used for post production duties than with straight music recording sessions, but the fact that it is available at all is completely in line with the CineLab aim of making every space as flexible as possible, and trying to cater for as many different clients as possible without compromise.

As well as these main facilities, there are a variety of other spaces around CineLab, including sound effect/sound design suites, artist/client lounges, a central machine room, transfer suite, and so on.

A Very Grand Design

The building itself was originally a large communal cold-store, and work to strip out that old internal structure began in early 2009. White Mark Limited was appointed around that time, eventually with responsibility for all audio production areas in the building. After a consultation period, including a visit to Les Auditoriums de Joinville in France as part of an investigation into large-scale Foley provision, more visits to the site by White Mark's David Bell and Derek Buckingham, and a tour of London post production facilities by the CineLab team, the layout of the production rooms was agreed by February 2010. In the meantime, work on the building had continued, including a raised roof height, the removal of upper floor pillars, and casting of the fixed isolation structures.

The floating shell structures were started in September 2010, and presented a few challenges of their own. David Bell: "We couldn't put the crane on the mounts becasuse it was too heavy, and we had to take the crane out of the building before the roof was finished so the mounts wouldn't get cold and be frozen. We had to build the frame on the ground with the crane; take the crane to pieces and take it out, finish the roof, then come in, lift the whole frame with jacks, put all the mounts [Christie & Grey] underneath, and then put it down again."

Also, the isolation shells combined with the cold Moscow winter presented a problem – the temperature of the air gap could potentially cause problems with condensation and ice build-up, so the whole building had to have an external insulation layer to ensure this wouldn't be a problem.

By August 2011 the facility was ready for reverb time checks and treatment adjustments to meet the Dolby Premier license criteria. There were also initial client visits for feedback on the facility. Initial Dolby licensing was agreed in December 2011 (Premier licensing was more recent) and clients have been using CineLab >

MARK OF EXCELLENCE

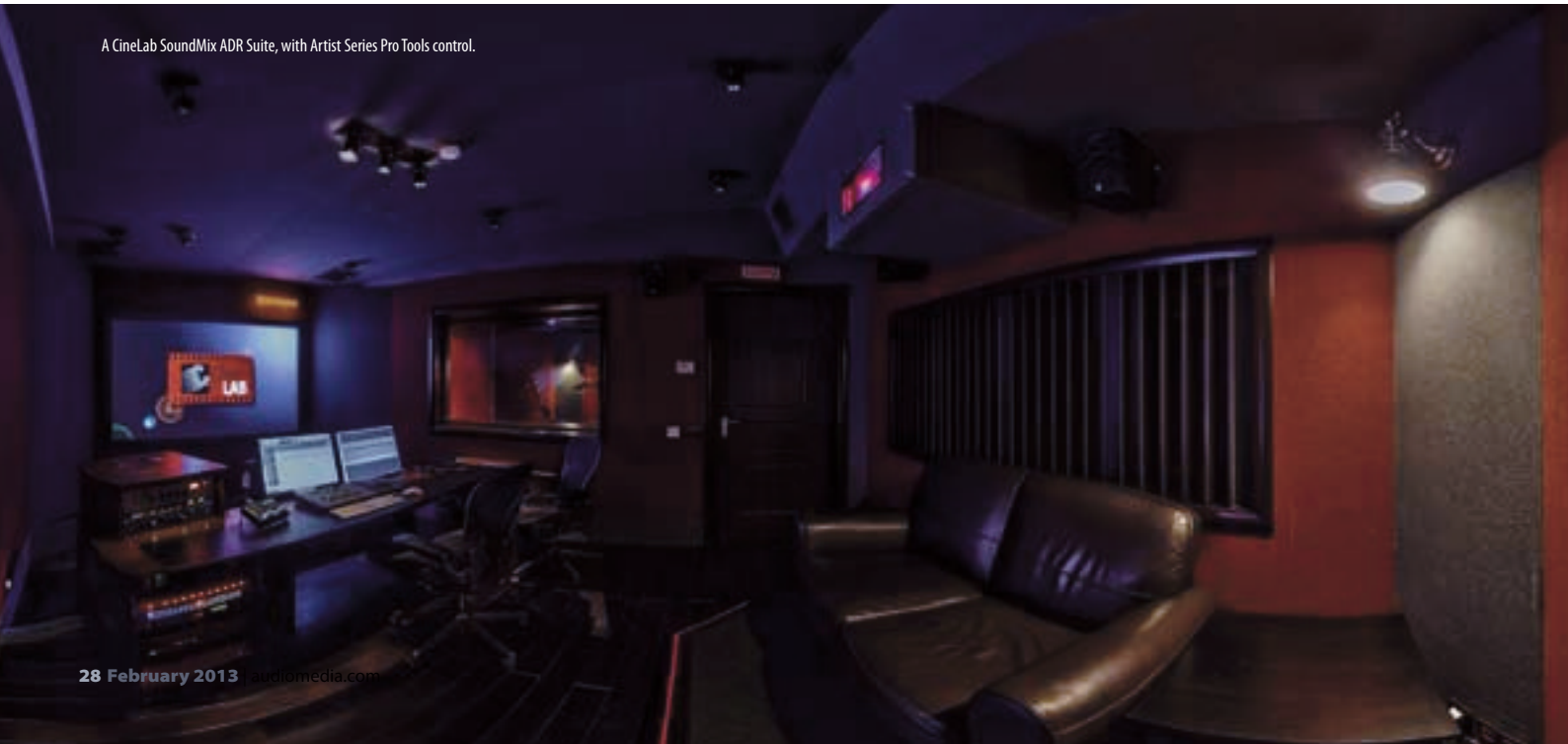
White Mark Limited is an acoustic and technical design company working in the audio and video post-production, television, film, and music recording industries worldwide. It specialises in production facilities for the film and television industry, music recording facilities, performance spaces, and educational facilities for the media industry. It has designed and supervised the construction of over 150 audio production suites and video facilities in London alone, with many more completed projects around the world. It won TEC awards in 2003 and 2008 for the Red Bull project in Santa Monica, and Hit Factory Studio Six in New York, respectively.

White Mark's most significant recently completed commissions have been the technical facilities for the new NBC Universal Headquarters, and the complete architectural and technical design responsibility for the new broadcast headquarters for ARD, the German national public broadcaster – both in London – plus facilities for Hogarth Worldwide in Romania, Singapore, Mexico, and New York.

To date the company has worked on five completed studios built to Dolby Premier Specification and has further such projects at various stages of design.

White Mark's Managing Director is David Bell, Chartered Engineer, who recently appeared as an expert witness in the UK Parliamentary enquiry into Crossrail (a transport project proposed for London) and its effects on the Soho region and the studios therein, culminating in the winning of commercial guarantees for the clients in the House of Lords.

Derek Buckingham is the Architectural Director of White Mark, and Alan Cundell is a Director, with responsibility for project management, finance, and overseeing the technical aspects of all White Mark projects.



A CineLab SoundMix ADR Suite, with Artist Series Pro Tools control.

SoundMix since then, even though the facility will not be fully complete and officially opened for a couple of months yet.

Core Competence

CineLab SoundMix is impressive – from the moment you reach the front door it is obvious that the objective from the start was to create an exceptional audio post production facility, without compromise. The building, the structures, the interiors, the equipment, and the staff all have a part to play in the whole, but perhaps the most important contributors to future success will be the key pillars of service, relationships, and excellence that have been etched into the very foundations of CineLab itself.

www.cinelab.ru
www.whitemark.com

CENTRAL SERVICES

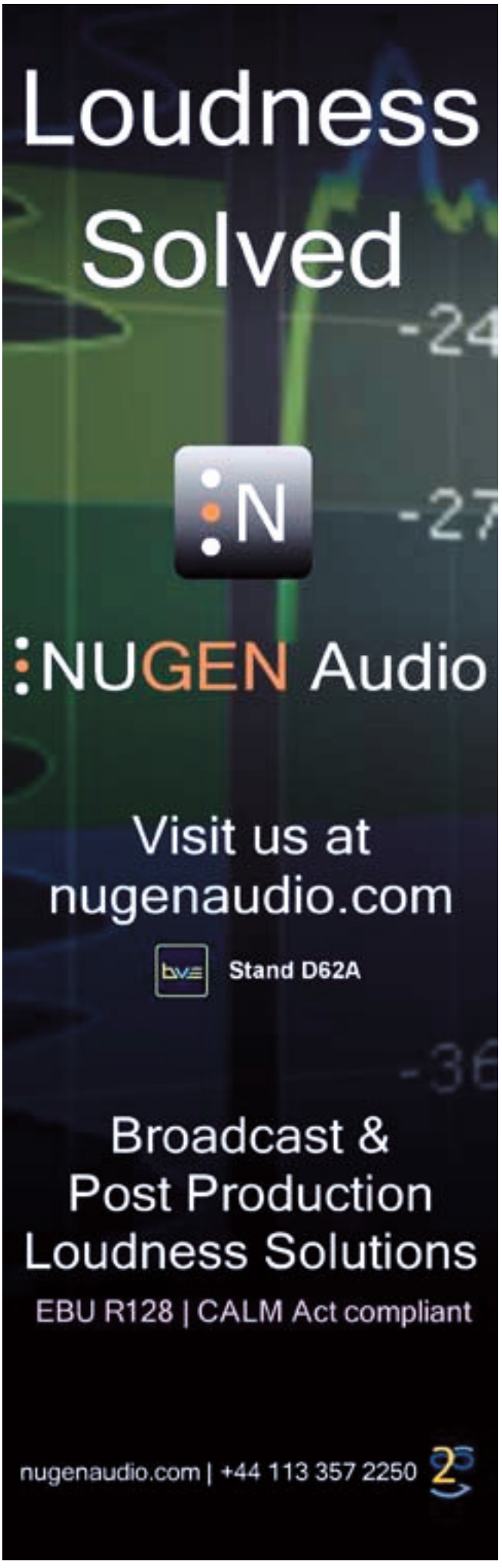
IT Infrastructure around ClineLab SoundMix is based on a centralised hard disk storage system, sophisticated KVM switching and control, and SSL MADI-X8 MADI routing systems, amongst other things. Every workstation in the facility works from the same storage array via iSCSI technology, which is the Ardis Technologies DDP (Dynamic Drive Pool) system, with SSD devices for audio and magnetic disks for video. This essentially means that multiple workstations are accessing and y playing a session from the same logical disk space. All of the console DSP, outboard, and matrix switching for the four 'M' studios and several of the others are stored in one room. The outboard routing is done via the MADI matrix so that every room can whatever outboard it requires at that time, easily patch with the SSL Logictivity browser-based control software. Another MADI matrix is used to connect all of the Dolby equipment – encoders and processors – for patching around the facility.

The Universal Studio is connected to the rest of the facility with a variety of exchange lines, including AES and MADI. This allows other control rooms around the facility to use the large live room when necessary, without disturbing the Universal Studio control room.

A large KVM switching system allows any terminal in any studio access to any workstation.

It's also worth mentioning that CineLab SoundMix is, at the time of writing, the only film sound company in Russia to have been granted the CDSA certificate for high standards in anti-piracy and content protection – an endorsement that could be very important to a wide client base.

CineLab SoundMix M1 mix room - Premier Licensed, Atmos-ready.



Flagship Empire Cinema Gets Dolby Atmos Refit

By Paul Watson

Any cinema-goer will no doubt be aware that the West End is home to the lion's share of our capital's finest cinemas. One of the more renowned, and most certainly state-of-the-art, is the Empire Leicester Square, which plays host to a string of London's premiere cinema events.

Although cinema is forever evolving, certain new technologies have been adopted with more widely opened arms than others; and according to Andre Mort, Head of Technical and Digital Development at Empire Cinemas, Dolby's Atmos is right at the top of the pile.

"We're always interested in new technology; we were actually one of the first cinemas to experiment with digital projection back in the day," he says. "Then the next trend was 3D, which has been pretty successful, but the weak link in the chain has always been the sound system. Atmos is like having 4D as it's essentially giving us 3D sound, and once we heard what it could really do, it became pretty clear that it is going to be the new stage of cinema."

The installation, which took place during the first two weeks of last year's Olympic Games, was not without its challenges, however, as the 1,330-capacity main room dates back to the early 1960s.

"The main difficulty was the ceiling speakers, because it's all lava plaster up there," Mort explains, pointing to the roof. "We had to scaffold out the cinema and put catwalks above the ceiling, then cut holes out to install the speakers. It took a week, and we had to close the cinema; the side wall speakers and subs at the back were easy in comparison."

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PreSonus Active Integration

Interactive Technology

The NAMM show was a big deal for PreSonus. As well as a raft of new products, the company revealed a new underlying technology foundation that will form the core of its new offerings: Active Integration technology. In a nutshell, this means PreSonus products will now sense each other, interact and work together – either wired or wirelessly – and will feature 32-bit floating-point DSP as well as integrated software. This, the company says, means they will be able to run on CPUs far more powerful than any of the current audio products on the market.

According to PreSonus, Active Integration technology will solve real-world live sound and studio problems. The manufacturer claims that it will take the concept of hardware/software integration to a new level, and will allow PreSonus to offer high-end capabilities that have never been available before.

All Active Integration products employ OMAP 5 multi-core ARM 2GHz Cortex-A processors. These 32-bit, 96 kHz multi-stream CPUs include an operating system, wireless and 100 Mb Ethernet communications, USB 2.0 and 1.1, and plenty of 532 MHz LPDDR2 SD RAM, the company says.

The first products to accommodate the new technology are the PreSonus StudioLive 32.4.2AI digital mixer and StudioLive AI-series loudspeakers. Both include wireless remote control over a variety of features, using free Mac, Windows, and iPad software; alternatively, standard Ethernet and AVB Ethernet communications are also available.

For the AI-series loudspeakers, DSP enables the use of Fulcrum Acoustics' high-end TQ Temporal Equalisation algorithms to produce coaxial speaker systems with "clarity and coherence," PreSonus states. This is said to make customising and optimising the system and for monitoring and fine-tuning performance much easier and affordable in real-time.

PreSonus claims that Active Integration has provided the StudioLive 32.4.2AI mixer with 64 times the processing power and 10,000 times more RAM than the previous StudioLive 24.4.2, which has led to twice as many internal effects busses, the addition of mute groups, user-assignable Quick Scene Recall buttons, and the ability to create two complete sets of EQ and dynamics settings for a channel and then make quick A/B comparisons at the touch of a button.

Information

Manufacturer
PreSonus
www.presonus.com

UK Distributor
Source Distribution
www.sourcedistribution.co.uk

JBL M2

Master Reference Monitor

US Loudspeaker manufacturer, JBL, presented its new M2 Master Reference Monitor: a free-standing, two-way system that is said to cater for the demands of all professional studio engineers.

The speaker boasts high-output, ultra-low distortion transducers, and provides an in-room frequency response of 20Hz to 40kHz along with a huge 123dB maximum SPL. This, the company says, will meet all today's music, cinema, and broadcast production requirements.

The M2 integrates several key components, all of which work together. At the heart of the system are JBL's patented D2 high frequency and 2216Nd low frequency transducers. The manufacturer claims that the D2 produces a smooth and extended high frequency response whatever level you are listening at; in full agreement is legendary Grammy award-winning Producer, Frank Filipetti, who spoke at the M2 demonstration.

"In all my years as an engineer and producer, I can honestly say I have never heard anything like this," he insisted, using clips from recordings as diverse as James Taylor and Korn to demonstrate the speaker's capabilities. "When I heard the M2, it was the first time I actually thought: 'I want to go back and mix all of the material I have ever worked on all over again'; this product is set to take studio monitoring to another level."

The 2216Nd Differential Drive woofer is no off-the-shelf woofer, JBL says. It alone employs five patented technologies to allow for a greater bass extension and high output. It utilises neodymium magnets and two voice coils, the latter of which allow the woofer's parameters to remain more stable at high output levels, which results in lower power compression and lower distortion at high system output.

In addition, the 2216Nd's cone, compliance and spider are engineered specifically to allow greater excursion at the woofer's lowest frequencies (20Hz).

Despite the M2's small footprint, the quality of its low frequency response means there is no need for a subwoofer whatsoever; in addition, its Image Control waveguide, designed specifically for the loudspeaker, is said to produce rich detail and imaging to a broad area of any room. These components, JBL says, provide a single seamless crossover point that reduces system complexity and allows a compact form-factor for flexibility placement in the room.

The M2 is also said to boast a spectral polar response unlike any conventional music production speaker, providing a smooth and consistent neutral response across a wide listening window; and that's not just at mix position, but virtually anywhere in the room, as Fillipetti went on to demonstrate.

Crown power amplifiers complete with internal floating-point DSP are used to bi-amplify and tune each speaker.

Information

Manufacturer
JBL
www.jblpro.com

UK Distributor
Sound Technology
www.soundtech.co.uk

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Soundtracs DiGiGrid

Waves/DiGiCo Networking, Processing, and I/O Platform

The joint DiGiCo and Waves press conference at NAMM this year was something of a highlight, but also proved a little confusing for some. Basically, the two companies have joined forces to bring back the Soundtracs brand and launch the DiGiGrid concept under that brand.

DiGiGrid is a comprehensive approach to connectivity, I/O, and DSP hardware and software, connected using the Waves SoundGrid networking protocol and thus integrating the SoundGrid DSP server. The SoundGrid networking protocol is called Waves AEB (Audio Exclusive Broadcast) and is scheduled for full AVB compliance, while the SoundGrid Intel DSP server is already established as the engine behind MultiRack – the plug-in host application. At the press conference the eMotion software mixer was also announced.

So essentially you get an Ethernet connector and then start collecting DiGiGrid components – anything from MADI bridges, current and legacy Pro Tools interfacing, heavy-duty network switch, SoundGrid server, and the DMI card for integrating DiGiCo D Rack interfaces into DiGiGrid. There is undoubtedly much more to come, and it only needs a little bit of imagination to see the potential of this new system.

Another angle is particularly relevant for Pro Tools users and even Venue users... That is, Waves has committed to AAX Native plug-in support, but not to AAX in DSP. Indeed, it announced at NAMM that it was opening up the SoundGrid server to third party plug-ins, with the Plug-in Alliance already confirmed. So, as the Pro Tools HDX platform moves to an exclusively AAX DSP platform, it is possible that SoundGrid will become more and more compelling as a hardware DSP host for Waves plug-ins – and any third parties that sign up.

With MADI, stage I/O, software mixing, third party plug-ins, and more goodies coming along, DiGiGrid might just become a whole new world at the end of an Ethernet cable...

DiGiGrid Components

The IOX I/O Expander is a 1U unit that includes 12 broadcast grade pre-amps, 192kHz ADC conversion, and six line inputs, giving the ability to connect artist and studio I/O via ASIO or Core audio drivers to the users current DAW system. Quick view metering on the units give assurance that signals are present before the onscreen metering provides a detailed view. The IOX also has four headphone outputs.

The IOC I/O Control Room is a 1 U unit that offers a range of connections for the control room. The design includes two broadcast grade pre-amps and 192kHz ADC conversion, plus ADAT I/O, eight line out, eight line in, and 16 AES I/O (all on 25 way D-type connectors), meaning artist and studio I/O can be connected to a DAW via ASIO or Core audio drivers.

The DLI DiGiGrid Link Interface is a 1U unit that plugs into the SoundGrid audio network, offering connectivity and access to both new and old Pro Tools hardware, and allows the user to integrate their existing SoundGrid DSP Server into the larger DiGiGrid network and I/O infrastructure. it features two Pro Tools DX10G1M-26SE connections, plus two SG network connections. It offers 64 channel I/O in either card or I/O modes.

The DiGiGrid MADI Coaxial I/O MGB and MGO models are basically identical apart from the choice of MADI on BNC or optical connection. The units offer portable MADI – in the most basic mode, the SoundGrid network connection is connected to a laptop or desktop computer, giving access to the two MADI I/Os that can be used to record up to 120 channels, through the computer's 1GB Ethernet port with simultaneous playback of 128 channels. Add a SoundGrid DSP server and SWI plus Waves MultiRack application, and any MADI-compatible live or broadcast console has instant access to real-time processing. This gives 256 MADI channels of audio at 48kHz, or a configuration change switches the unit over to 96kHz. In this mode, there are 128 channels of audio with 64 channels of recording and 64 channels of simultaneous playback.

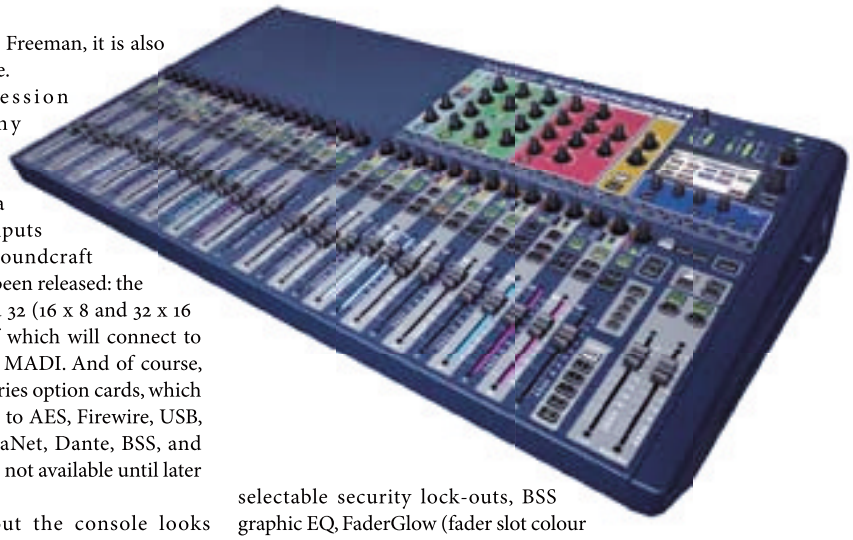
The DiGiGrid SWI is a network switch unit that once inserted into a system allows MADI I/O to be shared over the network. There is an 'owner' but they can share the inputs or release the outputs as requested. Once placed in a studio, MADI can be freely shared or combined with the other elements of the DiGiGrid range. It features a 5-port 1GB Ethernet switch and a reset switch.

The IOS I/O and Waves Precision Plug In Server is a 2U unit that is a Waves server, which includes a wide range of audio and control connections. It has eight broadcast grade preamps and 192kHz ADC conversion, together with MIDI, S/PDIF, AES/EBU, and eight line out. DiGiGrid's SoundGrid Intel Server allow the user to track and mix with their choice of Waves signal processing plug-in paths.

The DLS DiGiGrid Link Server is a 2U unit that is an all-in-one processing and SoundGrid connection hub, as well as an expansion route to future additional I/O or MADI connectivity. Native plug-ins from older Pro Tools hardware can still be used. Once plugged into the SoundGrid network, The DL units deliver the continued benefits of the users existing Pro Tools I/O, even when another platform is switched to.

Soundcraft Si Expression

Digital Mixing Console



A big new Harman launch came courtesy of Soundcraft, which presented its latest digital mixing console, the Si Expression. Three models have been released: the 1, 2, and 3, each of which have 16, 24, and 32 faders and mic inputs respectively. Designed to suit a number of audio applications, from small school and theatre installs to much larger rooms, they have been designed with flexibility and affordability in mind and, according to the manufacturer, will significantly widen its user base.

Each unit also features four line inputs, 20 aux busses, eight matrix busses, four mute groups, and 66 channels to mix.

All models boast approximately 200 rack units' worth of DSP processing. Features include high-pass filter, gate, dbx compressor, and BSS EQ on each channel, and there are 14 mix masters and four matrix sends. The console also has four Lexicon FX engines, which are based on the Lexicon MX400, and feature user adjustable parameters and dedicated tap-tempo keys. In addition, there is BSS Blue Link connectivity to dbx's personal monitor controller, the PMC 16.

The [32-fader] Si Expression 3 boasts 30 input faders on layer A, 30 on layer B, 14 assignable faders on layer C, and four on layer D. According to Managing Director of APA Live Events Ltd., Pete Freeman, it is also very simple to operate.

The Si Expression connects to any Soundcraft stagebox; each model in the range can provide a maximum of 66 inputs to mix. Two new Soundcraft stageboxes have also been released: the Mini Stagebox 16 and 32 (16 x 8 and 32 x 16 respectively), each of which will connect to the Si Expression via MADI. And of course, the console uses Si Series option cards, which open up connectivity to AES, Firewire, USB, ADAT, Aviom, CobraNet, Dante, BSS, and MADI (some of these not available until later this year).

"Everything about the console looks and feels nice; and in just a few minutes I was able to very easily find my way around Si Expression in a very familiar fashion," says Freeman, who also has 10 years of live engineering experience under his belt. "When I buy a console I look for two things: good sound, and a good user-interface. This console is extremely user friendly and gives you real confidence quite quickly; the encoders and faders are very nice and it has a real analogue feel to it. It also sounds great."

Other Expression features include selectable security lock-outs, BSS graphic EQ, FaderGlow (fader slot colour illumination according to current function), One-Touch easy mix, comprehensive copy and paste facilities, and more.

Information

Manufacturer
Soundcraft
www.soundcraft.com

UK Distributor
Sound Technology
www.soundtech.co.uk

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InVision® 7 Pop Filter Kit

Table Stand &
InVision® INV-7 HG MkIII

For more information

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Loudness Foundations

You know loudness is important, you know the world is putting limts on LUFS; but are you well enough prepared and equipped to ensure your deliverables don't get returned to sender? It's time to exchange your sausages for Toblerones. TC Electronic's Thomas Lund breaks down the basics...

EXPERT *Witness*

1. Welcome Loudness Normalisation

The days of the Loudness Wars – where the mantra was: the louder the better – are coming to an end. Thanks to ITU, a non-commercial organisation under United Nations, audio professionals from any genre can work against a transparent Loudness Target. If you're systematically below that Target, the programme or track will get turned up. If you're always above, it will be turned down. The concept is called "loudness normalisation". It works great, it's based on open standards, and it's finding the way into TV, mobile TV, radio, iTunes, gaming, even cinemas and IMAX theatres. Loudness normalisation also allows entirely different types of programmes to sit back to back: news, talk shows, old pop, new pop, film, commercials, drama, concerts – because it defines a best fit gain offset. This is the first step towards a world where the volume knobs of TV remotes or iPods will no longer be the first to wear out.

2. Goodbye Sausage Processing

Having the same loudness programme for programme, track for track doesn't mean that each of them has to be the same shade of grey from start to finish. On the contrary. Because level is no longer constantly banging against the ceiling, a wonderful quality is being rediscovered: variation. Once again, loudness variation can become part of the storytelling in music, drama, and broadcast. The EBU standard even includes an objective measure of how much loudness varies inside a programme or a track, allowing you to objectively balance contrasts and suit a certain audience or a particular listening situation. Old sausage compressors and sausage limiters can still be used for creative reasons, but chances are that your music track or commercial will appear dull and not very appealing if you overdose it. Using more words from the food vocabulary: Like liver paste among other programmes with Gruyère, Jamon Iberico, and Truffles. After loudness correction in broadcast or in iTunes, a sausaged audio file will actually appear to be softer than most other programme material, drawing less attention.

3. Delivery Specs: Programme Loudness

If the end destination for your production is HD broadcast, be sure to know the delivery specifications you're up against. Nearly all broadcasters in the world are now rooted in the same ITU standard named BS.1770. It's tightly followed by Brazil, China, Europe, Japan, and others, but there are still a few things to check: the default Target Loudness in Europe is -23 LUFS, everywhere else it's -24 LUFS. Using an EBU R128 compliant meter, your programme should measure one of those as "Programme Loudness".

Uncertainty only really creeps in if you're delivering to a US broadcaster, where requirements could be according to the local ATSC A/85 standard specifying speech level to be measured instead of Programme Loudness, unless it's a commercial. For these stations, hit -24 LUFS when soloing normal speech in regular programmes. For a US-bound commercial, measure all audio like with BS.1770. Until the next revision of A/85, US stations may also ask for measurements to be carried out using an obsolete version of BS.1770. On a loudness meter, the outdated version might appear as "Leq(K)" or "BS.1770-1". Note: The unit for loudness, "LUFS" is exactly the same as the "LKFS". Some have taken the "U" vs. "K" as an indication of differences in measurement, but that is a misunderstanding.

4. Delivery Specs: True-Peak Level

Loudness measurement is by far the most important part of the new broadcast standards. A user is even encouraged to disregard peak level unless there's a risk of overload. Still, the ITU standard includes a more precise way of measuring peak level in the digital domain than the old sample by sample measure called "true-peak". To maximise headroom, which is a defining factor in music clarity and in speech intelligibility, as high true-peaks as possible should be allowed. The EBU R128 standard sets the bar high at -1 dBTP, which is ideal for linear audio, while most other regions require true-peak to stay below -2 dBTP.

5. Universal HD Broadcast Delivery

Combining all of the above, unless specific local rules apply, this guideline can be followed to deliver a programme to any broadcaster anywhere:

1. Use a BS.1770-3 meter to hit -23 LUFS. Most countries accept between -26 and 22 LUFS, except for Europe where you should be between -24 and -22 LUFS.

2. Make sure you don't have true-peak level higher than -2 dBTP.

3. Make sure that solo of regular speech doesn't fall below -25 LUFS.

6. Mixing for Mobile TV, iTunes, and Web

If your production is not targeted at broadcast, but for instance iTunes, mobile TV, or online streams, it is still recommended to use the new and efficient loudness tools when mixing. iTunes has a fine function called "Sound Check" which is able to normalise music tracks and podcasts. Research has shown that its Target Loudness is close to -16 LUFS on a BS.1770 scale; so tracks softer than -16 LUFS are boosted, those louder are brought down. Another recent study proved how -16 LUFS in general is a good Target to aim for, where the user of mobile TVs from any vendor, iPods, iPads, etc, is able to turn up the level high enough, while it still allows for essential transients to survive. Fortunately, it's not a problem to convert an HD broadcast programme normalised at -23 LUFS to a fine sounding, mobile TV version normalised at -16 LUFS. It can easily be done without destroying the discrimination between foreground and background sounds or without custom metadata and codecs.

For consumers with flat panel TVs and matchbox sized loudspeakers, personal platforms and headphones is the closest they get to a decent audio experience these days. Let's make sure that possibility is preserved by putting an end to sausage processing and to lossy data reduction where we can. Bottom line: there's no reason to make mobile TV, iPod, and Web mixes louder than -16 LUFS.

Thomas Lund is HD Development Manager at TC Electronic, one of the leading manufacturers of loudness meters and audio processors. With perceptual studies as the background, Thomas has played a significant role in the development of several broadcast standards such as ITU-R BS.1770, BS.1771, BS.1864, EBU R128, ATSC A/85, and others.

>

Loudness

Loudness in broadcasting is subject to increasing government legislation, recommendations from standards organisations, and a growing array of software and hardware solutions. If you need some guidance on how to make loudness less of an issue, you need this Tech Focus.

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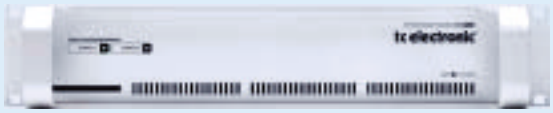

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[1] TC Electronic's DB8 MKII and DB4 MKII units are state-of-the-art transmission processors. They allow users to measure loudness, correct accordingly to various broadcast standards, and to convert seamlessly between formats. The only difference between DB4 MKII and DB8 MKII is the number of processors. Both units have dual power inlets, dual Pabst fans, and dual fuses. Both units also feature a wide variety of I/O formats and physical connectors, including SDI, AES/EBU, Coax, BNC, and Sub-D. The TC Electronic Radar Loudness Meter is included with both units, and TC Icon hardware can be connected for hands-on control. The units offer standard compatibility with ITU BS.1770-3, EBU R128, and ATSC A/85.

The DB2 puts 'all tools necessary for trouble-free broadcasting into one rack-mountable unit'. It features automatic loudness correction, is ITU BS.1770, EBU R128, and ATSC A/85 compliant, and can be easily upgraded.

www.tcelectronic.com

[2] The LM2 from TC Electronic offers a full-featured stereo loudness and true-peak level meter. The front panel gives instant access to figures for broadcast standard compliance; for more detail, the user can connect LM2 to a PC or Mac via USB and get a full, real time Radar screen picture. LM2 facilitates precision normalisation and optimum use of dialnorm metadata in AC3 transmission. It comes pre-loaded with factory pre-sets compliant with ITU-R BS.1770, ATSC A/85, EBU R128, NABJ, OP-59, and BCAP guidelines. A variety of 24-bit resolution audio inputs and outputs are offered, including AES/EBU, TOS, SPDIF/AES3 id, ADAT, and analogue.

Also available is the LM2 Radar Loudness Meter, a native plug-in that measures loudness and true-peak on stereo tracks in all major DAWs. It features a Radar Display that gives loudness history, momentary loudness, true-peak level, programme loudness, and loudness range (LRA) in a single view.

www.tcelectronic.com

[3] The P2 Level Pilot from TC Electronic is a real time loudness controller, multi-band processor, and true-peak limiter designed for use in video and post production. It offers dedicated processing and pre-sets for working within EBU R128, ATSC A/85, and TR-B32 environments at a latency of 0.8ms. P2 also includes trickle-down pre-sets for mobile and iPod platforms within ITU-R BS.1770-2, EBU R128, ATSC A/85, and TR-B32 environments, at 48 bit resolution and still at a latency of 0.8ms. The unit features one-key set-and-forget operation, and can be easily cloned to facilitate management of a large studio complex.

www.tcelectronic.com

[4] Junger Audio's T*AP Television Audio Processor is compliant with all current broadcast audio loudness recommendations. It features loudness normalisation and dynamic range processing for up to eight channels of audio. Optional Dolby decoding and encoding including metadata management are also provided, along with 5.1 downmix and upmix features.

The M*AP Monitoring Processor combines an audio monitor controller with network-enabled loudness measurement features. It supports up to eight speakers to allow for A/B checking of stereo compatibility of a surround downmix through alternative speakers, as well as via L/R front speakers. A Dolby production toolset emulates a coding and decoding process.

The D*AP series of digital audio processors consists of two products with 1 x stereo or 2 x stereo programs. The LM2/LM4_2ch offers two channels of processing with AES and optional analogue I/O, while the LM4 can handle four channels with on-board AES I/O and optional 3G SDI or analogue I/O.

Cards available for the C8000 modular system include a 16-channel HD/SDI de-embedder and embedder; MADI in and out cards; AES in and out cards; analogue mic in, and XLR and Sub-D in and out cards.

www.junger-audio.com

[5] Nugen Audio's LMB Loudness Management Batch processor is an off-line, file-based loudness analysis and correction program designed for rapid assessment and correction of files for loudness and true-peak content to ITU-R BS.1770 and EBU R128-based specifications. It has simple drag-and-drop interface and a 'hot folders' facility. It automatically checks and conforms files to multiple broadcast criteria. LMB produces detailed logs and includes a built-in graphing facility. It can be fully integrated into an automated system using the optional command-line interface and XML file output logs. Processing is typically over 100x real-time analysis, depending on the system.

www.nugenaudio.com

[6] Nugen Audio's VisLM features detailed, objective loudness measurement, history and logging facilities, offering an ITU, ATSC, and EBU standard-compliant way to measure, compare, and contrast loudness. It offers true-peak level metering (inter-sample accurate level monitoring), loudness range (to help decide if and how much dynamic compression to apply), momentary 'instantaneous loudness' for mixing by ear, short-term loudness (three-second time window), and program loudness (long-term integrated loudness measurement); and is a comprehensive tool to help

users deal with the complexity of loudness compliance. It is available in two versions, VisLM-C (compact) and VisLM-H, with history view and data logging options.
www.nugenaudio.com

[7] ISL from Nugen Audio is a transparent look-ahead limiter that uses the standardised true-peak algorithms of ITU-R B.S 1770 and related standards, and is suitable for the control of audio for post production and broadcast applications. ISL differs from traditional approaches to limiting by measuring inter-sample peaks and allowing the user to set the true-peak limit, rather than the traditional threshold at which limiting begins. By measuring and correcting for inter-sample levels, ISL protects against distortion that can be introduced by downstream codecs such as MP3 and AAC. It is mono through 5.1 surround compatible.
www.nugenaudio.com

[8] Nugen Audio LM-Correct is a loudness quick-fix tool, available as a standalone model and also for Avid AudioSuite. LM-Correct offers automatic correction to international standards, including ITU-R BS1770-2, ATSC A/85, and EBU R128; plus immediate finalisation of audio mixed using real-time loudness meters. Loudness jumps are eliminated by loudness consistency assessments and programme loudness matching. It offers true-peak measurement and is mono through 5.1 surround compatible. LM-Correct works faster than real time and offers a clear intuitive GUI, with a two-click solution to loudness normalisation and conformance.
www.nugenaudio.com

[9] The compact TouchMonitor TM3 from RTW consists of a display unit for vertical or horizontal use and a remote interface box. It handles analogue or digital stereo signals (TM3) and digital six-channel signals (TM3-6CH). TM3's user interface allows the selection of up to 10 pre-sets with a finger swipe. Local pre-sets can be configured using the Devicer DC1 software application, allowing existing pre-sets to be personalised and adapted. Devicer DC1 allows the creation of several configuration sets with different pre-sets. The TM3 features comprehensive loudness measuring features, conforming to all relevant international standards. Loudness instruments include single-channel and summing bargraphs, loudness range and numerical displays.

The TouchMonitor TM3-3G offers loudness, true-peak and PPM metering for 3G SDI audio, with optional 16-channel de-embedder outputs and monitor controller. The TM3-3G has an integrated 3G-SDI de-embedder interface, and displays level and loudness of any eight 3G-SDI audio channels. Independently from this, up to 16 SDI audio signals can be sent to eight AES3 outputs.
www.rtw.de

[10] The RTW/TC Electronic TM7 and TM9 TouchMonitor units are equipped with high-grade seven or nine-inch touch screens and an easy-to-use GUI, which is controlled by either a finger or a mouse. Instruments can be scaled, randomly positioned, and combined in almost every way for optimised use of available screen space. There is 16-channel audio interfacing, including analogue, AES3 and AES3id (depending on hardware version). On the TM9, there is a 3G-SDI interface for up to 32 input channels.

TouchMonitor TM7 is available with housings for into 19-inch/3U standard racks, or into standard 19-inch rack-mount cabinets for waveform monitors for video studios.

The latest firmware enhancement now gives the possibility to measure and to display signals of the 7.1 DD+ surround format, plus RTW's Surround Sound Analyzer has been expanded to display the balance and the subjective impression of the 7.1 DD+ format in a clear graphical overview.
www.rtw.de

[11] The TSL PAM2 Mk2 is equipped with an SDI output that exports the bargraph, data, and loudness histogram displays to an external monitor for 'at a glance' review of mission critical audio information. It features Dolby's CAT1100 module, a new platform for comprehensive decoding and monitoring of Dolby audio formats that are used throughout the HD broadcast chain. The new module will enable the PAM2 MK2 to perform Dolby E decoding and external speaker monitoring, as well as Dolby Digital Plus with surround descriptive audio and stream mixing. Additional features include dialogue intelligence loudness measurement, and simultaneous multi-channel and stereo outputs.

The PAM2-3G16 is a multi-channel audio monitoring unit featuring dual high-resolution OLED screens, 16 bargraphs, and optional Dolby decoding. The multi-standard, multi-format unit uses pre-set menus and shortcut keys to simplify monitoring of multi-channel audio. Also available is the 1RU PAM1-3G16, which has a full 16 bargraph display and many of the advanced features of the PAM2-3G16, such as loudness measurement, pre-set standard switching, and advance monitoring mode selection. It ships with dual 1080p 60Hz auto sensing HDSDI inputs, multi-channel AES, and analogue I/O. It also features a custom designed three-way internal loudspeaker system.
www.tsl.co.uk

[12] The TSL PAM PiCo, developed with DK Technologies around its Loudness Meter, is a compact standalone audio and loudness meter. Designed for use in any operational position where 'at a glance' audio metering is required, PAM PiCo is available in four formats; to display stereo, multi-channel or surround sound audio from analogue, AES or embedded SDI signal sources, all measuring loudness to international standards. No bigger than a smartphone, PAM PiCo handles stereo or 5.1 metering with an array of user-selectable bargraphs, moving coil emulation, and StarFish surround sound displays for use in diverse audio monitoring applications. Built around proprietary hardware, the PAM PiCo does not rely on a third party consumer electronics platform, and is self-contained.

It displays integrated and sliding scale loudness measurement simultaneously with an option to show loudness history across an extended graphical display. Parameters are fully configurable via a comprehensive set-up menu.
www.tsl.co.uk

[13] DK Technologies' Loudness Meter (which the TSL PAM PiCo is based on) is a 'one box solution' to audio and loudness metering. The DK Meter complies with all major broadcast loudness standards. It has a full featured audio meter package, including bargraph, optional FFT, vectorscope, phase correlation, StarFish, JellyFish, and moving coil emulation. Features include a unique loudness reclaim factor, which allows users to optimise loudness results; real time true peak PPM – an optimised level with no hidden 'digital overs'; and an optional 'eye width' SDI signal quality indicator. The intuitive touch user interface allows plug-and-play use, and the flexible and user definable display set-up allows personalised viewings to fit individual workflow. The optional screen grabber gives instant documentation of loudness levels. The 4.3-inch screen offers vertical and horizontal viewing, and the unit can be powered from the included PSU or directly from a computer USB port.
www.dk-technlogies.com

[14] The DK Technologies MSD100C loudness meter incorporates a backlit colour display offering accurate loudness measurement, loudness matching of audio signals, left/right and summed display of loudness and an audio vector oscilloscope and phase correlation meter display. It features dual balanced analogue inputs and a digital AES-3 input, 25-pole D-Sub audio connector, RS 232 utility input, 15-pin connector for an external VGA display, plus a built-in mains power supply. There are two main operating modes – Fast Mode for instantaneous monitoring of the loudness level, and Integrating Mode for a single figure overall loudness.

www.dk-technlogies.com

[15] The Waves WLM Loudness Meter plug-in is an all-in-one, cross-platform, multi-format loudness metering software solution. It provides precision loudness measurement and metering for broadcast, movie trailers, games, packaged media, and more. Fully SoundGrid-compatible and compliant with current ITU-R BS.1770-2, EBU R-128, and ATSC A/85 specifications, the WLM offers comprehensive momentary, short term, long term, and true peak readouts, plus a warning and logging system that keeps track of levels and lets the user know when they have exceeded them – or fallen short. Waves recommend the WLM for content creators and post production houses, as well as cable head-end facilities.

The Waves Loudness Meter offers three measurement methods. EBU uses foreground audio as the loudness anchor; LM1 measures and averages loudness across the whole program; and DIAL uses dialogue as the loudness anchor, measuring, and averaging loudness only when dialogue is detected. It features mono, stereo, and 5.1 components.

www.waves.com

[16] Wohler's Pandora loudness analyser is a solution for monitoring and identifying inconsistent loudness levels from channel to channel, and from programming to commercials. Standards addressed are ATSC A/85 (ITU-1770 and 1771), EBU R128, and ARIB TR-B32. The Wohler Loudness application, when used in conjunction with Wohler Pandora, allows the user to monitor and analyse loudness levels from stereo up to eight channels extracted from either an SDI input or four AES embedded pairs. Pandora enables users to set up their own reference parameters including over/under limits, as well as gating, integration time, and metering modes. Configuration is done via a touch screen interface that runs on an iPod touch. Features include logging, with the ability to email log files in .csv format; integration, histogram, and loudness range setting menu; and adjustable integration periods with histogram display of loudness over time. It is available as a tabletop or rack-mounted unit.

www.wohler.com

[17] The Wohler 1RU AMP1-16 Series monitors 16 channels of audio from 3G/HD/SD-SDI and AES audio, while the AMP1-E16V-MD includes Dolby D and Dolby E capability. All channels can be selected for simultaneous display and concurrently monitored on an LCD screen. All serial audio channels are de-embedded and available on the rear panel as eight unbalanced AES signal pairs or eight analogue channels. The system can also output a re-clocked 3G/HD/SD-SDI.

The AMP2-16 Series is a modular 16-channel audio/video workstation with a complete suite of tools for analysing and managing audio quality, level and loudness, metadata and more.

www.wohler.com

[18] The Linear Acoustic LQ-1000 Loudness Quality Monitor provides comprehensive ITU-R BS. 1770 loudness and peak level monitoring of up to eight channels of 5.1 surround and/or stereo AES or SDI audio. The LQ-1000 allows the monitoring of all critical loudness parameters on a colour OLED display. Current loudness is indicated by a large, easy-to-read number alongside target loudness, dialnorm, and peak levels (with true peak value). Loudness and peak values are indicated on a bargraph display, while a histogram shows loudness over time. A VGA output is provided to send the full display to an external monitor.

www.linearacoustic.com

[19] Linear Acoustic's AERO.2000 combines loudness control, AEROMAX audio processing, Dolby encoding/decoding, upmixing via UPMAX II and extensive I/O features. AERO.1000 is a high density, metadata-based transmission audio loudness platform that comprises up to eight AEROMAX audio processing engines in a single 1RU package. The AERO.1000 features CARBON Hybrid Processing, a hybrid between multi-band techniques and metadata control.

The 1RU AERO.one comes in four versions, and is a simple solution for loudness shifts and loss of surround sound. The two-channel AERO.lite is aimed at broadcasters who do not require the ability to handle multi-channel audio.

AERO.mobile addresses audio quality for viewers watching and listening on mobile devices. AERO.qc is a comprehensive quality control system that allows users to fix loudness problems automatically and in real time as audio enters the plant and is fed into the ingest server or in live production environments.

www.linearacoustic.com

[20] The Flux Sound And Picture Pure Analyzer System is a network-driven modular RTA system providing an extensive range of analyser options for a range of audio analysis and measurement applications. Pure Analyzer presents the option to separate the signal acquisition from the analysis, utilising a Sample grabber plug-in, and also provides I/O support for ASIO and Core Audio. The foundation of the system is a standalone application, Pure Analyzer Essential, which can be extended with modules for live, metering/loudness and surround analysis, performing the graphic analysis rendering using a GPU-efficient 2D/3D graphic engine. The Pure Analyzer Essential application receives the sample feeds from the Sample grabber and analyses them in real time. Pure Analyzer Metering provides an extensive set of measurement tools adapted for broadcast and post production facilities, presenting the metering tools for a range of standards such as true peak, RMS, ITU-1779, EBU-R128, history, and more.

www.fluxhome.com

[21] Insight from iZotope is a comprehensive metering suite for post production and broadcast applications. Insight provides an extensive set of audio analysis and metering tools, for visualising changes made during mixing and mastering, troubleshooting problematic mixes, and ensuring compliance with broadcast loudness standards. Fully customisable and scalable, Insight allows the user to visually monitor all relevant information from a mono, stereo, or surround mix in a floating window. A complete set of metering tools is provided, including true peak meters, loudness meters, a loudness history graph, stereo vectroscope, surround scope, 2D/3D spectrogram, and spectrum analyser. Insight is fully compliant with current loudness standards.

Insight is also part of iZotope's Ozone 5 Advanced, which is a complete mastering system including eight mastering tools. Ozone 5 Advanced also includes extended features and controls for every module, as well as individual component plug-ins for DAW use – including Insight.

www.izotope.com

[22] MeterPlugs' LCAST loudness meter for broadcast is available in stereo or surround versions, and supports all major loudness standards, with easy-to-use pre-sets for the most popular ones. Mono, stereo, and surround formats are all compatible (surround only in LCAST Surround). LCAST can be used with Logic, Final Cut Pro X, Soundtrack Pro, Cubase, Nuendo, Reaper, and others. The primary display, the history plot, shows a timeline of a programme's loudness and allows loudness peaks and valleys to be spotted quickly. It records up to 24 hours of loudness history. The history plot displays all standard loudness measurements: momentary, short-term and integrated loudness. In addition, LCAST features a custom variance measurement that gives the user an idea how dynamic the audio is. LCAST's true peak meters accurately detect inter-sample peaks and warn of potential clipping, by internally quadrupling the signal frequency and interpolating between audio signals.
www.meterplugs.com

[23] Minnetonka Audio's AudioTools AWE is a low cost, complete solution for the automated alteration of digital audio assets. Existing files can be post-processed or repurposed quickly and easily, in a completely pre-defined way. AudioTools AWE allows users to specify an end-to-end file handling and DSP chain of actions that can be run unattended. Via the Output Sets feature, a single interleaved source file can be deinterleaved, processed through a DSP chain including VST plug-ins and then delivered as multiple output files in multiple formats simultaneously.
www.minnetonkaaudio.com

[24] The Qualis Audio Sentinel surround sound audio monitor measures and monitors loudness to the latest ITU-R BS.1770, ATSC A/85 and EBU R128 standards. The Sentinel logs all measured parameters and can be configured to preserve the data as a continuous measurement history in a long-term storage repository. When loudness problems are found, the Sentinel can send problem specific notifications via email, contact closures, or audible alarms. All measurements, alarms, and logs are accessible via its network connection using a standard web browser. Dual Stream technology measures interleaved commercial and programme segments – when pausing the loudness measurement on a programme, it automatically performs a separate loudness measurement of the commercials. The Loudness and QA Forensics toolbox is a comprehensive set of tools to investigate loudness exceptions and QoE issues. Quantitative downmix analysis identifies stereo and mono downmix issues.
www.qualisaudio.com

[25] The Trinnov SmartMeter v3 is a software option based on Trinnov Audio stereo and multi-channel monitoring platforms that now synchronises loudness measurements to timecode. All Loudness and True peak values are constantly recorded and time stamped, allowing recall, inspection and verification at any time without having to manually pause, resume or restart a measurement.

In combination with four integrated loudness meters, multi-loudness management, momentary loudness statistics, dynamic alerts profiling, sessions save and recall capabilities, detailed reporting, SNMP traps, Trinnov says that Smart Meter V3 is "One the most comprehensive loudness metering solution available on the market."

Industry standards from mono to 7.1 are supported, as well as forthcoming multichannel formats up to 24 channels

Session-specific thresholds can be chosen from the standard alert profiles – EBU R128, ATSC A/85, CST RT17, ARIB TR B32 – or user-defined to comply with the custom delivery requirements. The event log is constantly updated and can be filtered to display the alerts of a specific source and/or type of alert. Users are notified about LTC drops and therefore potential measurement errors.
www.trinnov.com

[26] DaySequerra's iLM8 Live Intelligence Loudness Monitor measures perceived loudness of eight channels of programme audio using ITU-R BS.1770/1 and DTS Neural Loudness Measure (NLM) algorithms, and displays the results in an easy-to-read numerical format with a moving average over time. Four AES inputs and one HD-SDI input (optional) are provided for simultaneous measurement for 5.1 surround and auxiliary stereo inputs. With the HD/SDI option, eight channels of de-multiplexed SDI audio can be routed to the AES outputs. The iLM8 Live uses a DSP-based processing platform to avoid broadcast disruptions caused by operating system lockups.
www.daysequerra.com

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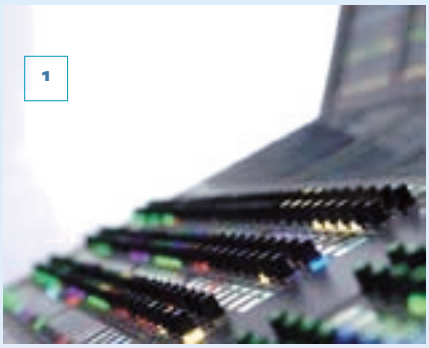
Tech Focus II: Broadcast Consoles

The world of broadcast consoles is a broad one – television, radio, on-air, production, digital, analogue, all-singing, all-dancing, all-controlling. Here's our guide to a range of gear for a range of applications...



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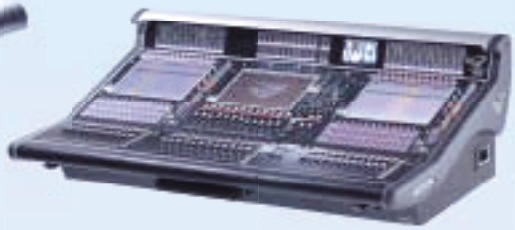

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[1] Calrec's Apollo control surface features displays, touch screens, and light-emitting knobs. Apollo utilises Bluefin2, the next generation of Bluefin HDSP, which provides resources of up to 1,020 channel processing paths, 128 program busses, 96 IFB/Track outputs, and 48 auxes. It offers single and dual fader options and an integrated router. I/O functions are performed by the Hydra2 network.

Artemis is based on the Apollo platform. Available in three sizes, an Artemis Shine has 680 channel processing paths, 340 on an Artemis Beam, and 240 on an Artemis Light, with up to 128 program busses, 64 IFB/Track outputs, and 32 auxiliaries. Artemis Light puts all this in a 4U enclosure.
www.calrec.com

[2] Calrec's original Bluefin consoles include Alpha, which features an assignable control surface. Bluefin provides 480 channel processing paths, allowing up to 78 x full 5.1 channels.

Sigma provides 320 channel processing paths, enabling the console to handle up to 52 x full 5.1 surround channels. This capacity is enhanced by an identical buss structure to the larger Alpha console, including 20 auxiliaries and 48 tracks.

Omega provides 240 channel processing paths packaged as 72 stereo and 96 mono channels, allowing up to 39 x 5.1 surround channels.
www.calrec.com

[3] Lawo's compact crystal console has a case height of 3cm. Buttons are illuminated by RGB LEDs that allow for colour coding of various functions. Other features include high-resolution OLED displays, and an ambient light sensor to adapt the brightness of displays. The modular sapphire console is intended for on-air and production applications. All that is needed to start broadcasting is a central module, a channel module, and a couple of interfaces; but the sapphire can be extended to meet more demanding needs.
www.lawo.de

[4] The Lawo mc²90 is a modular console that features integrated loudness metering, and the AMBIT DSP module that converts stereo signals to surround sound. Configurations from 16+8 faders to 192+16 faders are possible. The console offers 888 channels and 144 summing busses, with a 40-bit floating point. It has up to 760 inputs with A/B input, up to 64 sub groups, 32 aux sends, 96 track busses, 48 main sums, and the ability to change on the fly from mono to stereo to surround channel and buss.

The mc²66 can also offer 888 DSP channels and 144 summing busses. It features the redundantly designable MKII router, which provides 8,192 crosspoints, and fully integrated loudness metering.

The compact mc²56 is available in five different frame sizes and features permanent metering of the 16 central faders and directly accessible parameters.
www.lawo.de

[5] The StageTec On Air 24 console is a modular, flexible, and scalable system. It has compact four-way fader panels that allow split fader console designs that can include desk space for scripts or paperwork.

Features include assignable push-buttons on the fader modules, router access through NEXUS configuration software with user rights, and full control of outboard and third party systems through NEXUS logic control data. It can be controlled by scheduling/automation systems, and offers full static automation and snapshots.
www.stagetec.com

[6] StageTec's AURUS console operates around the concept of consistent separation of console and I/O matrix, but with instant access to all key parameters. This is made possible by the implementation of dual encoders. Depending on configuration, up to 96 channel strips and 300 audio channels are available.

AURATUS is a small console with 54 input channels and a fixed buss layout. The modular structure supports versions featuring 8, 16, or 24 channel strips. The AURATUS features a hardwired buss layout and also a simple user interface. All critical audio-channel parameters can be set using the dual encoders on the channel strip, or from the master section.

The CRESCENDO sits between the AURUS and the AURATUS. It is freely configurable both in respect to the number of channels and the number of busses. Configurations of up to 300 audio channels and 128 summing busses are supported. The number of mono, stereo, and 5.1 sums, as well as stereo and 5.1 input-channel linking, are also freely configurable.
www.stagetec.com

[7] The DiGiCo SD10B broadcast digital console features 96 channels with full processing, 12 of which are flexi channels that can be configured as mono or stereo, with full processing available in either mode; 48 assignable busses that offer multiple configurations, plus a stereo, LCR, or 5.1 master buss and a complete 5.1 monitoring matrix with a 48x6 source to speaker selection.

The SD7B features three 15-inch TFT LCD touch screens, each of which sits above a bank of 12 faders. The worksurface handles up to 996 simultaneous optical plus 224 MADI, 24 analogue, and AES/EBU connections, along with 128 busses (each with full processing in mono, stereo, LCR or 5.1), 32 matrix busses, and 32, 32-band graphic equalisers.

The SD11B is a compact 19-inch rack-mount or tabletop mixer, featuring 12 touch sensitive moving faders below a 15-inch touch sensitive screen. 15 microphone pre-amps, eight line outputs, and two mono AES I/O are provided, and a DiGiCo D-Rack can be connected to the CAT5E port.
www.digico.biz

[8] Studer's Vista 9 features TFT-based metering. The console uses Studer's Vistonics, with each touch-sensitive TFT screen showing 10 channel strips, with rotary encoders and switches mounted directly onto the screen. FaderGlow provides the operator with an instant overview of the console status by illuminating each fader in one of eight freely-assignable colours. >

Broadcast Consoles

Vista 1 is a transportable digital mixing console. Everything needed is contained within the console – the control surface, I/O system, DSP, and power supplies are all in one box. The console comes in a standard configuration comprising 32 or 22 motorised faders and 96 DSP channels, including 5.1 surround channels.

Vista 5 M2 has the optional addition of the same TFT metering system as the Vista 9. Existing Vista 5 owners can upgrade to the M2 version to be ready for the optional meter bridge.
www.studer.ch

[9] The Studer OnAir 1500 is a flexible, hybrid 12-channel, six-fader console. It features integrated USB playback and record functions.

The OnAir 2500 is a digital all-in-one console. The fader strips include a graphical OLED screen, which contains a channel label, level, and gain reduction meter and parameter readouts. Three standard configurations with 12, 18, and 24 faders are available. It is also available in a modular version for installation in custom studio furniture, the OnAir 2500 Modulo.

The OnAir 3000 is based on a completely modular desk. The fader module includes six fader strips, and up to eight fader modules may be fitted. The console has three main stereo mix busses plus an audition facility, four stereo aux busses, 16 mix-minus sends configurable as auxes, and three independent studio monitoring circuits. It is also available in a Modulo version.
www.studer.ch

[10] Allen & Heath's XB-14 radio broadcast mixer features telephone communication modules for telephone callers, mic fader start sensing for external connection, and internal automatic muting of the speaker outputs, stereo channel start/cue outputs for CD desk transport control, separate headphones mix and outputs for guests, and an audition bus.

The XB-10 is an ultra-compact broadcast mixer that features a telephone communication channel, mic channel ON switch sensing, stereo channel start/cue outputs for CD deck transport control, and automatic muting of speaker outputs. A separate monitor mix can be created for operator and guest or presenter, and the operator can speak off-air to the studio or telephone callers using the 'Talk' feature.
www.allen-heath.com

[11] The Sonifex S2 is a modular radio broadcast mixer, with both digital and analogue input channels, together with simultaneous analogue and digital outputs. It features PFL/cue, fader-start operation of equipment, automatic monitor muting on mic-live, light controlling remote outputs, optional EQ on input modules, gram amp input options, and two main audio busses.

The So is a simple to operate radio broadcast mixer that includes a telephone hybrid for making and recording telephone calls, and a 3.5mm stereo jack for plugging in an MP3 player. The addition of a USB port allows for recording to a PC and for playing a PC automation system directly through the mixer.
www.sonifex.co.uk

[12] The C100 HDS from Solid State Logic is a fully scalable digital broadcast console. It is a custom configured system where console, processing, routing, and I/O specifications are tailored to match individual requirements. Features include comprehensive 5.1 production tools with metering and monitoring, flexible buss architecture, single fader stem control, an intuitive panning system, and stereo to 5.1 upmix. Up to 512 channels are available, with up to 256 full DSP processing channels and 256 non-processing channels.

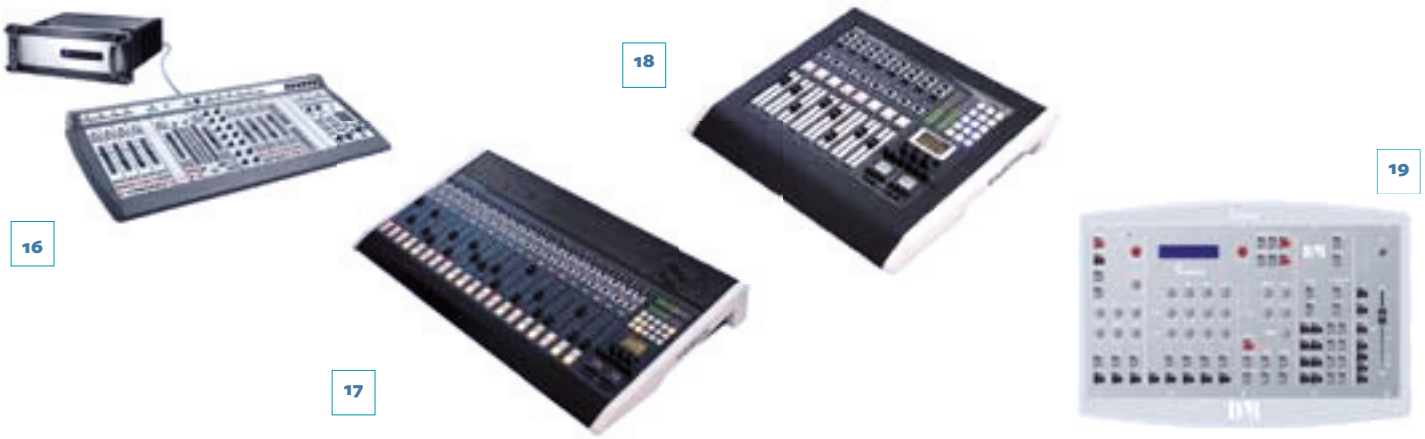
The C10 HD is based on the C100 but in a compact package. A choice of fader configurations and a range of I/O options are available.

The C200 HD is a digital audio console with a traditional analogue style 'knob per function' control surface with an in-line channel format. It offers dual faders per channel strip, 12 main busses for stereo/5.1 audio sub groups, two programme outputs (5.1 and stereo), and 48 multi-track busses with individual gain trim.
www.solid-state-logic.com

[13] SAS Audio's Rubicon is a completely modular surface. Modules include input, control room monitor, studio monitor, console control, intercom, remote control, and delay control. There are 10 buttons on the top of each input module that are programmable as hot-source select, buss assigns, or remote control triggers. The Rubicon SL is a reduced-feature version of Rubicon, and provides full router sources select, four mix busses, an unlimited number of automatic mix-minus busses, mode, pan/balance, and IFB/talkback on each input module.
www.sasaudio.com

[14] The M Class console from SAS was engineered to have the same design principles as the Rubicon, but to cost less. It is available in three frame size and includes the RIOLink engine, which provides a 32x32 audio matrix (analogue, digital or half of each), 16 relays, 16 optos, and 16 serial ports. It can be used as a standalone board or as part of a larger networked system. The optional Flex2 module provides a direct interface to an SAS 64000 router, RIOLink, or 32KD.
www.sasaudio.com

[15] Axia's RAQ is a 4RU networked news mixer. It features six rotary-fader channels, which can each provide mix-minus automatically to any phone or codec source assigned to them. There are two stereo program busses,



and a preview buss, and OLED program metering, with a choice of VU or PPM meter ballistics. Each channel strip has an OLED showing what source is assigned. There is also a full-featured monitor section, and show profiles console snapshots.

DESQ is a 16-inch square desktop IP-audio console, which can be used as a standalone console or as part of an Axia studio network. It offers two stereo program busses and a preview buss; plus there are six fader strips.
www.axiaaudio.com

[16] Axia's Element is a modular broadcast control surface. Features include advanced integration with Telos phone and codec products, four auxiliary sends and two returns, three-band SmartQ equalisation, and Omnia dynamics processing on every microphone source. Element's four program outputs can be configured to mix in either stereo or surround (5.1+2). It is designed to fully exploit the benefits of the Axia IP-Audio network and has no dedicated faders, with each fader able to accommodate any source available on the network. PowerStation is an integrated console engine that works with Element, featuring a high-powered DSP mixing engine, integral power supply, digital, analogue, and mic I/O, and its own Ethernet switch.
www.axiaaudio.com

[17] AEQ's Forum is a self-contained digital console featuring configurable monitoring for all system signals, four direct-routing buttons on each channel, an integrated talkback mic input, two precision stereo VU meters, and pre-fader monitor speakers.

The Arena digital console has a modular control panel with built-in configuration memory, combined with motorised faders and fader pages. Bravo is based on the BC-300, with four mic/line channels and eight dual stereo line channels. Opera is based on the BC-500, with the same basic features and updated technology.
www.aeqbroadcast.com

[18] AEQ's Capitol offers the same performance as the Forum but in a fixed format. The control surface has eight faders and complete control sections, which can be substituted or supplemented with Virtual Capitol, a Windows based software application. It features four selectable mic/line inputs, 12 analogue inputs, and eight outputs, four AES/EBU digital stereo inputs/outputs, two USB digital stereo inputs/outputs for broadcast automation, two optional inputs/outputs through digital telephone hybrids, and 64 input/output signals via an optional MADI link.
www.aeqbroadcast.com

[19] The Sirius digital on-air modular console from D&R can be set up with modular input and output control surfaces, a modular control room section, a modular 'super module' control surface, and a 19-inch communication rack with interface modules. A total of 64 inputs can be assigned to any of the 16 input faders. The output section has four program busses, eight group busses, eight clean feed busses, and six aux busses that can be assigned to any of the 64 outputs.
www.d-r.nl

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[20] The Soundcraft Series 15 is a fully modular radio mixer designed for on-air and broadcast production. It offers features such as four stereo groups, insert points, and comprehensive monitoring facilities, plus an integral meterbridge. It is available in 16, 24, and 32 module frames.

The Series 10 is a fully modular on-air mixing console designed for use in local radio stations and smaller studios of national radio broadcasters. It offers a wide choice of configurations, with 12, 20, or 28-input frames able to be specified.

www.soundcraft.com

[21] The RM100 from Soundcraft is a modular radio on-air console designed for ease-of-use. It is available in three frame sizes of eight, 12, or 20 channels, with modules selected from the range of mono, stereo, telco, and source select. A master module is standard with every console. Custom configurations are available to special order.

The RM105 is a modular on-air console that provides a cost-efficient studio control package. The frame can also be eight, 12, or 20 channels wide, with a standard master module.

www.soundcraft.com

[22] The modular Oxygen 7 from Axel Technology utilises modules including mono, telco, stereo, sub, master – ctrl studio, monitor – ctrl room, VU meters, and timer.

Oxygen 5 features two output busses, two recording outputs, and a monitor section. Oxygen 5 Digital features components divided into control surfaces and I/O racks.

The modular Oxygen 4 has all relevant functions built in. Oxygen 4 Digital features 18 digital and analogue inputs, a crosspoint router, 32-bit processing, and EQ and dynamics on every channel. Oxygen 3 is a compact self-contained radio console.

www.axeltechnology.com

[23] The DHD 52/DX desktop mixer has four faders, 1U DSP and I/O unit; while the 52/SX compact modular mixing console uses a simplified version of DHD's Toolbox5. The 52/R can be configured with four to 48 faders and features linking via Ethernet, operations of four independent mixers with one DSP unit, and freely configurable TFT Views. The 52/MX has a new design that includes a redeveloped control desk based on fader and control modules, and touch-sensitive TFT displays.

www.dhd-audio.de

[24] The Glensound T3 analogue broadcast console is available from three to 32 channels, in a single console or a split frame. There are 24 module options, and 11 bridge options. It features balanced mixing circuits, and transformer balanced mic and clean feed modules. Optional digital inputs and outputs are available. The digital inputs of the T3 also allow connections via AES3, S/PDIF, and TOSLINK optical.

www.glensound.co.uk

[25] WheatNet-IP is Wheatstone's AoIP network, where each BLADE – or node – has the 'DNA' of the entire network and can operate in any position.

The LX-24 is a tabletop modular control surface designed to operate with WheatNet-IP. It features four sets of high-resolution LED meters, four stereo busses, and four pre-fader aux sends.

Evolution radio consoles are also configured for WheatNet-IP. The E1 becomes a standalone broadcast mixer when combined with the ip88cb Console BLADE. E-4 is designed for smaller market facilities, while the flagship E-6 inherits features from Wheatstone's Generation series.

Wheatstone Bridge TDM Audio Networking is compatible with the new generation of Generation consoles and the Evolution series, and will give control over every aspect of the networked audio. The heart of the Bridge network is the S-16 WheatNet Switch, a high speed central switch that links multiple studios with the technical operations centre.

www.wheatstone-radio.com

[26] The Audioarts IP12 digital radio console is aimed at operations entering networked audio. The X-12 has modular I/O and a USB port that allows direct interfacing to computer-based editors and automation. The R-55E features two stereo program busses and two mono busses. The D-75 features individual plug-in modules, while the D-75N networked digital radio console can be modified with the Net-75 panel to provide a fully integrated network system. The Air-1 has two mono mic inputs and six stereo inputs that can be routed to one or both of the console's stereo outputs. The Air-4 is a low cost, compact 12-channel radio console.

www.audioartsengineering.com

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"By using the 'learn' function for about a second, the passing audio was then immediately processed and I was blown away. Not only had the noise totally vanished – I mean absolutely gone – but also the punch and clarity of the vocal was astonishing."

Ben Burns

Cedar DNS 8 Live

Multi-Channel Dialogue Noise Suppressor

CEDAR Audio is a company with a fascinating history. Following a 1983 research project commissioned by the British Library National Sound Archives, the company was formed in 1988 and went on to develop all manner of noise reduction products. Aided by incorporation into third party products, such as Sadie and Pyramix, world-class noise reduction technology was presented for the first time to studios of all sizes.

Although initially intended for cleaning up the national archives, tens of thousands of CDs and DVDs were soon re-mastered utilising CEDAR products, not to mention noise reduction for many Hollywood films, TV newsrooms, and a host of live-to- air broadcasts. More recently, audio forensics users include police and security agencies you've heard of, and many others who remain anonymous. Pioneering work into audio restoration and speech enhancement even bagged the company an Academy Award® in 2005, for its services to the film industry.

DNS 8 Live

Although CEDAR's DNS (dialogue noise suppression) processors have all featured real-time processing with near-zero latency, this is the first time that eight channels of processing have been packaged together in a small box with a simplified two-button operation mode.

So, what does the DNS 8 Live do? The basic idea is to remove, or at least reduce, a constant annoyance in many film and TV sets: noise. This could be things such as air conditioning systems, TV lights, traffic rumble, and camera equipment. In the live environment, it can be used to reduce the background noise of signals from, say, sensitive lectern microphones that often require dramatic dynamic processing as a result of bad public speakers who whisper very quietly from three feet away, or shout and scream right into the capsule. Lavelier mics are also great at picking up the noise from clothing, jewellery, and other performer-induced noise. There's no excuse for a lack of preparation, but utilising the DNS 8 Live can turn these annoyances into a thing of the past. Other sources of noise might be set machinery such as a West End show performer rising through the stage on a noisy lift whilst trying to sing a soft passage. Elsewhere, show announcers often sit in noisy production areas surrounded by computers and fans, but still need to make crystal clear announcements. These are just some of the areas where the DNS 8 Live could drastically improve the clarity of the human voice, helping to deliver intelligibility in difficult acoustic environments.

THE REVIEWER
BEN BURNS is a London-based freelance engineer- both live and studio- with credits including Blur, Dido, Embrace, Happy Mondays, and more.

From The Manufacturer:

"We developed the original DNS1000 and its successors specifically for use in film and TV post, with facilities and control panels carefully designed to optimise them for this purpose. Of course, we were delighted when we discovered that they were becoming widely used in fields as diverse as dialogue recording, live sound and audio surveillance, but we felt we could do more for our customers working in the areas of sound reinforcement and live-to-air broadcast. This entailed far more than repackaging the existing DNS technology, and the DNS 8 Live is the culmination of years of research into the underlying algorithms as well as innovative hardware development."

Gordon Reid,
Managing Director, Cedar

Overview

The technology behind DNS processing removes audio artefacts by splitting the signal in each channel into many spectral bands, each of which contains numerous filters. Each band is then processed in isolation, allowing different noise reduction settings to be used in each.

With the DNS 8 Live, you get eight channels of real-time processing, and each channel is able to 'learn' a noise and calculate its own filter settings automatically. This takes seconds to set up, and usually sounds amazing right away.

Simplicity is best friends with smooth and easy live sound, and having only two controls for any processing device is about as simple as it gets! But if you want to have more control, there is a detailed mode available where you can tweak the band controls individually for each of the eight processing channels.

Offering worldwide compatibility, the unit can run off standard 12V or mains voltages from 85v to 260v, so it's equally at home in a studio, ENG unit, or film set. Plugging in an AC supply and a battery at the same time gives you a private UPS, as the unit will continue to operate and process audio flawlessly if the mains supply fails.

The audio I/O is strictly AES/EBU, so don't expect to insert the DNS 8 Live into an analogue signal path. Not only does this mean that the latency of the unit is limited to just the processing delay (0.2ms at 44.1kHz), but that it's only 20cm deep and weighs just 3kg. Low heat emissions mean you can't warm cold hands on it, but the power consumption is low at 15W.

You have a choice of two AES3 inputs: standard digital XLRs (AES/EBU stereo) or a 25-pin D-sub connector conforming to AES59. Audio clocking is automatic and can run from any input; it handles sample rates up to 96kHz, but all the sources must be synchronised together – the DNS won't be happy with different clock sources or un-synchronised AES streams. There is also a standard BNC input on the rear for external clocking, complete with a recessed 75Ω termination switch.

DNS

Once you're hooked up and clocked correctly, operation is via six front panel switches and eight infinite rotary controls that are also push buttons used to toggle which parameter the encoder controls. Of the six buttons to the left of the unit, three are dedicated for use as power, menu, and lock functions. The remaining three switches are assignable 'soft-keys' with various functions defined on the screen.

Now this is where things get a little more 21st century. With a single click these switches perform one function, but go in with a double click or hold for a moment, and a different operation can be accomplished. For instance, you have to hold the power switch for five seconds to turn it off, which is a good safety feature in case something knocks the power switch mid-show. Once you are familiar with the operation of the buttons, the unit is very easy to navigate and set up to taste. There are only a few displays to understand, and the menu system is very simple in its layout, so you can get to audio input settings or word-clock input settings very easily and, more importantly, quickly.

The design of the control system is also very slick and simple. In normal mode, the main screen displays an overview of all eight channels. The currently selected channel can be set to bypass or process, or set into Learn mode with just one soft-key touch. Selecting a channel is as simple as pushing the relevant rotary encoder.

Whilst the overview screen is handy, each channel's individual bargraph display shows what is going on as well – located next to each of the eight rotary controls these displays would not look odd on Picard's enterprise, glowing with an eerie turquoise hue.

How such a small control surface can possibly control the vast brains inside this little 1U box is beyond me, but CEDAR has managed it with flying colours. With just two parameters per channel (in normal mode) operation couldn't be simpler. Once you've identified the noise you want to remove by using the Learn function, it's a case of tweaking the noise level (if necessary) and dialling in the amount of noise reduction you want. By pushing the rotary encoder to toggle which parameter it controls, adjusting either takes just seconds; it's a bit like setting up a noise gate with threshold and ratio controls. You can also create 'Groups' to control multiple channels simultaneously so that, if the noise changes consistently across numerous microphones, you can adjust them all with a single knob, while the 'detail mode' offers a detailed editor for each of the eight processing channels. This allows operators to use the first six encoders to find the areas of the spectrum they wish to manipulate, offering more control, for instance, to remove low end from a signal, or to allow a certain band to pass unaffected. The seventh encoder then affects all of the bands in unison, retaining their relative balance, whilst the eighth selects the channel you want to work with. Whilst in this mode, the main display and the channel displays change to show the levels for each of the six bands, which is a most efficient way to keep the whole operation uncluttered and provides information at a single glance.

If you have some room tone or a piece of audio containing only the unwanted noise, the system can easily 'learn' the noise in a few seconds. I started by recording some spoken vocal in a pretty quiet studio but had a fan heater running as a noise source. I also added in a few computer fans for good measure. By using the Learn function for about a second, the audio was then immediately processed and I was blown away. Not only had the noise totally vanished – I mean absolutely gone – but also the punch and clarity of the vocal was astonishing. I was half expecting some digital artefacts to affect the naturalness of the sound, but there really was nothing odd there at all – it turns a live dialogue signal with this kind of embeeded noise into something that sounds like it's been meticulously manicured and edited to perfection.

Using the DNS 8 Live with a good quality Lynx AES16e soundcard, it quickly locked to 44.1Khz and I really was blown away by the quality and clarity of the audio.

When utilising the DNS 8 Live across a selection of sensitive microphones in a reflective venue, the intelligibility was noticeably increased, and in the studio I even found it useful as noise gates on the toms on a drum kit – as these tend to resonate when not played. Again, latency is not an issue, enabling the unit to be used for any live purposes without, for instance, adversely affecting signals monitored by an artist using IEMs.

The DNS 8 Live acts like an automatic mixer in a sense – eliminating background noise and making the signal sound expensive. At a press conference for a film, it produced results of an unbelievable quality, perfect when combining live reinforcement and multiple press feeds – which need to be crystal clear. The most time consuming part of the process was setting up the digital console's insert points.

Control System

By using a standard Ethernet socket for networking, the DNS 8 Live can be controlled via standard network devices using web-based software. The software was unavailable for the review, but should be released soon.

Firmware updates can also be uploaded to the unit via a standard web interface. This will ensure forward compatibility for some time to come, until the death of Ethernet ultimately. I don't use an iPad, but I dare say it might be possible to create an app to control one or more DNS 8 Lives.

Conclusion

If you need top-notch dialogue noise suppression, there are not many options. Sure, there are some plug-ins that can analyse noise and then remove it from a audio file – but that's not the same thing as a real-time processor of this quality, and the results are also nowhere near as transparent as the DNS 8 Live.

This really is a very high quality product. I absolutely love the design and simplicity of the controls and, once you get used to the way things work, it is effortless to adjust a control. You have to keep tabs on which parameter is selected before you adjust a rotary control, but again this is something that takes no more than a quick glance to affirm.

I could imagine uses in every sector of the live industry, from churches to stadiums to corporate events. The human voice is the one common thread that should sound crystal. This kind of quality is not cheap however: a DNS 8 Live retails in the UK for GB£4,600. Also, keep in mind that, if you're a live user, you will also need to be using some of the AES/EBU channels on your mixing console. Happily most good digital consoles are equipped with enough AES/EBU connections to handle at least one DNS 8 Live. As engineers hear the benefits of this device, the technology will hopefully become more widespread in the live sector.

Information

Feature Set

- **Eight channels of dialogue noise suppression**
- **New DNS algorithm with super-fast two-knob set-up p/channel**
- **Detailed DNS mode**
- **1U rackmount, 20cm depth, 3kg weight**
- **Digital PCM I/O**
- **AES3 on XLR sockets plus DB25**
- **44.1, 48, 88.2, and 96kHz sample rates**

Manufacturer
Cedar Audio
www.cedar-audio.com

Price Details
GB£4,600.00 (exc.VAT/shipping)

"I was impressed at how efficient this system was and how easily adjusted – resetting a new set of measurements for a larger listening area including a back sofa produced a very different curve and managed to remove a boominess I had often heard when sitting at the back of the studio…"

Alan Branch

IK Multimedia **ARC System 2**

Advanced Room Correction System

ARC System 2 (Advanced Room Correction) by IK Multimedia is a complete kit to help measure and correct your studio acoustics. A combination of Measurement Microphone, analysis software, and a DAW plug-in is designed to help those struggling with problematic studio rooms and speakers. Typically, a first point of investigation when anyone is struggling with mixes in general, is to make sure your studio set-up is right, so this might be just the solution if this is you. An update to the original ARC system, this update offers a redesigned interface, four times the resolution, new custom curves, and a variety of monitoring options.

Overview

ARC System 2 uses something called Audyssey MultEQ XT32 patented technology, a tried and tested technology developed from the hi-fi world. The ARC kit provides a quarter-inch condenser electret measurement microphone, looking very much like an Earthworks/ Bruel & Kjaer thin pointed pencil design, common in measurement mics. Alongside this is a CD-Rom including the measurement software and plug-in application. The software is multi-platform, so supports Mac and PC, and the plug-in is 64-bit compatible VST, RTAS, and AU, so will work with most DAWs. Obviously, you still need to plug the mic into your audio interface, so ideally you need something of a neutral quality, as any coloured tone introduced here will affect how effective the ARC2 might be.

Installation

Like any software, the best way to install is to check for the latest version online – once registered through IK's management software, this is all straight forward and all updates were completed in a few minutes.

Set-Up

ARC 2 works by first taking a series of measurements. The mic has to be placed vertically and at the correct listening height, then the software will take you through the set-up process step by step. You need to make sure any direct monitoring is turned off, that the audio interface is set to 48kHz and 48v phantom power is switched on, and then follow a measurement guide for the correct positioning of the microphone. I used an Apogee Ensemble for my tests and made sure it was as direct as I could make it to the speakers. Launching the ARC standalone app will prompt you through the set-up process, firstly choosing the correct microphone, setting the I/O routing and then adjusting the levels. Once this is completed, the software will explain how to take a series of multiple measurements in and around the listening position, the idea being that the measurements will take into account the frequency responses from every angle and its magical algorithm will work out a correction curve that you can apply via the plug-in, so your monitors sound wonderful with the ARC 2 in place.

I tested the ARC 2 with an Apogee Ensemble and Harbeth Expression speakers (some of the best monitors ever made in my opinion), and my studio environment that has been purpose made with bass traps and completely lined with absorber panels – a room I am happy with monitoring-wise, so I wasn't expecting the ARC 2 to make a huge adjustment to the sound but was happy to see if it could be improved. But, any room you want to produce music from should have some kind of acoustic treatment, otherwise it's like sticking a band aid over a major wound! Once your measurement process is set up, the ARC will ask you to place the microphone in several locations, which the manual says are different for each room set-up. These demonstrate alternative listing examples, but essentially the more measurements the better depending on the area you need to cover. For myself it's a tight listening position with 14 alternative measurements. Starting from a central point I took the first measurement then worked around this position – 10 chirps are played from the left monitor, then the right, at every step.

Once all the measurements are taken, the ARC will save the results to be used within the plug-in. There is a useful selection of speaker icons you can save them with, so it's

THE REVIEWER
ALAN BRANCH is a freelance engineer/ producer and ex-member of the On U Sound Crew. His long list of credits include Jamiroquai, Beverley Knight, M People, Simply Red, Depeche Mode, Shed 7, Sinead O' Connor, Bjork, and Sade. www.alanbranch.com

easy to remember multiple measurements for alternative speakers sets. Loading the plug-in works by placing the ARC 2 in the last slot of a master output of your DAW and selecting your saved measurement. Then, to cover different room types and crossover circuitry, the ARC 2 provides a selection of four alternative Target Curves: Flat, HF Roll-off 1, Flat (mid Comp), and HF Roll-off 1 (mid Comp). The combination of these enables the software to calculate the correct EQ and phase corrections. It's really not as complicated as it sounds; these options are there to fine-tune your curve selection. There is frequency response display graph via an Orange Curve (before) showing the measurements, a White Curve (after) showing the result after correction, and a Green Curve (target) showing the selected target curve: a helpful guide for when you do start tweaking your curve selection. There are four other custom user definable curves that can be adjusted via a dedicated edit EQ curve window, so if the results are a little bright or bass light for your personal taste they can be tweaked further. This might seem mad given that this is supposed to be giving you a flat speaker system, but as I noted earlier, speakers and their relative performance are very personal and best adjusted to suit what helps you as an engineer/songwriter/producer to achieve the best results. The main aim of using something like the ARC 2 is to remove unwanted tonal imbalance, either from the speakers or the room, that is colouring the sound so much it becomes unclear.

The ARC 2 also has a geometry adjustment switchable from Combined L/R Correction to Full Range Bass Correction – this should help those that may have speakers less than ideally placed and thus losing detail because of phase anomalies. At the bottom of the window is a peak meter to show the input or output, a 'Correction On' switch, and a handy trim knob to help balance out the before and after signals. Once this is all set up and you're happy with the improvement in sound, you can continue to work as normal with ARC 2 in your DAW now controlling your monitoring – but it's vital to remember when a mix is to be bounced down the plug-in is to be bypassed, as the ARC 2 is purely compensating for your monitoring unless you have a dedicated DAW monitoring buss where you can insert the ARC2. There is a further 'Monitor Control' window with a large volume knob, dim, mute, level trim, and stereo/mono mode switches, all of which can be controlled via external midi hardware, and a 'Virtual Monitoring' feature that can mimic the sound of different studio monitors, car systems, boom boxes, etc.

In Use

I must admit to being very sceptical of even the idea of the ARC 2 being useful, having experienced troublesome monitor EQ in various new studio builds. If you have huge standing waves building up in the room, ARC won't help, as that's just physics! But, if you have a room with acoustic treatment but still need some help sorting out the sound, ARC 2 could help provide a flat loudspeaker response at your listening position. Taking the measurements wasn't bad, though I'm sure there is an easier way to do it. I started off by marking the floor position, then realised that the boom arm of the mic stand can move way too easily, so to make it as accurate as possible I used a tape measure to ensure the mic was in an identical symmetrical position either side of the central listening point, taking a note of the distance from mic to speaker and always carefully choosing the same position of the tape against the speaker carcass.

The resulting curve, once measurements were complete, at first looked a bit worrying with some small mid-range dips. I don't have a large desk in front of my speakers to cause these, but I do have a set of Euphonix Mix controllers. The rest of the result looked relatively flat. Switching in for the first time was worryingly pleasant, however, I could hear a small phase shift and what seemed a lot of brightness being added, so a bit more investigation meant I really had to customise the ARC 2 via the alternative curves and a small EQ adjustment until I found a setting I was comfortable to work with. I was impressed, though, at how efficient this system was and how easily adjusted – resetting a new set of measurements for a larger listening area including a back sofa produced a very different curve and managed to remove a boominess I had often heard when sitting at the back of the studio even though my layout is very small. However, choosing this alternative curve then affected the main listening position.

Bypassing the ARC2 plug-in on bounce down is a relatively easy process, but because I always listen to the master as it's going down and then checking its playback, this causes a problem – removing the ARC monitoring EQ from the mix can seriously affect your judgement at such a late stage of the mix process, so the only option would be to not listen to it, unless you have a plug-in enabled monitor path like in Cubase, or can set your DAW mix to go via 2 Aux paths, one to the monitors and one to the bounce down. But to check any mix back afterwards, this again causes a problem as monitoring straight from the operating system would not hold the ARC 2 correction, so the only way to check it would be to load the master back into the DAW and listen that way – not an ideal work around for me. It would be nice if the ARC 2 was a stand-alone application I could route all sounds from the Ensemble through. However there are third party audio utilities such as Audio Hijack Pro that can achieve this for you fairly painlessly. Alternatively, it's best to have an audio interface hardware that has software whereby you can place the ARC plug-in permanently in the monitoring chain.

In Summary

I think the ARC 2 is a very sophisticated room/speaker adjustment package, but given how low cost it is, I must question how accurate the Measurement Mic is – a mic of this sort normally costs four times as much! However, the measurements I experienced weren't far off the mark, and the easy set-up process really couldn't be more straightforward.

No adjustment by the ARC 2 will improve a room much with poor acoustic treatment, but it may well help those that are suffering from poor speaker performance or odd room characteristics that are producing tonal anomalies making mixing difficult. It may be perfect for a mobile recording or a hotel room scenario that seems more and more common these days. It might also help analyse and fix acoustic problems in conjunction with new sound treatment, as a lot of studios are an on-going upgrade development process. All in all, it's not a magic wand to fix all sonic problems, and does have some practical working difficulties; but for the money, the ease of use, and the sophisticated R&D behind it, the ARC2 might just help find the solution to those suffering from troublesome hit and miss mix results.

The Theory

Setting up your studio correctly is paramount to any form of studio recording or mixing, but every room has its own character of sound because of the make-up of reflective surfaces and patterns of LF waves bouncing around. So the trick is to have it properly designed with bass traps and absorbers to minimise how the room can affect the sound coming from the speakers. Then there is correct speaker placement, the type of amplification, the correct height, and even the supports the speakers sit upon.

Now that's fine and dandy if you have room and money to create such a space, but what if you are producing mixes within a project studio with not as much absorption as you like, or an oddly shaped room? The use of 'near-field' or compact speakers can help, as the close proximity of the speaker can be more direct to the listener, eliminating some of the sound influences of the room. But it still doesn't stop there, as the type of speaker (or monitor) is just as important – reference monitors with a linear or flat frequency response should be more accurate, giving an uncoloured reproduction of the sound source. But no monitors are completely flat, and as some argue, what's the point in having super expensive flat accurate monitors when the majority of people listen in their car, earphones, or a cheap stereo? It may therefore be better to have accurate but slightly coloured monitors that help you translate your music production to these systems. Whatever your choice in monitors is, I've always taken the view that speakers are a personal thing – I like mine to be reasonably flat and, most importantly, not fatiguing.

Information

Feature Set

- **VST, RTAS, AU correction for Mac/PC**
- **Professional measurement microphone**
- **Native compatibility with 64-bit applications/systems**
- **Automatic multi-point measurement system**
- **Measurement precision when used with ARC microphone**

Manufacturer
IK Multimedia
www.ikmultimedia.com

Price Details
GB£239.99 (inc.VAT)

"I started flicking through the global presets, which instantly gave me a great idea of what was possible with this plug-in. I could clearly hear the unmistakable sonic result that was possible with Alloy 2, which is of a very high level."

Simon Allen

iZotope Alloy 2

Channel Strip Plug-in

The sonic sound of modern music is evolving. It is driven from changes and developments in technology that include how people listen to music in this new 'Internet era', how it is made, as well as the progression of the history of music. Alloy 2 is the second version of a complete channel strip plug-in that is marketed for the modern mixing style from the innovative and pioneering company iZotope. This should be a significant release, and I was excited to put it to the test.

Overview

Alloy 2 is iZotope's second version of Alloy, which is a complete channel strip signal processor that now boasts six modules. Aimed at mixing, this one-stop-shop brings together the traditional analogue style tools together with modern mixing techniques, all within one plug-in.

The user interface has been completely re-vamped from Alloy 1, and is very easy to navigate from the first try. The first thing that struck me was the size of the plug-in window. It is much larger than most, and considering iZotope expects you to be able to do anything you need from this single plug-in, it looks great and works well. There are select buttons for each module with individual bypass switches continuously to hand along the bottom of the window for easy navigation and A/B comparisons. An overview panel gives you a great view of the whole signal process you have created, with only important controls such as compressor thresholds on show.

There are six modules: EQ, Transient shaper, Exciter, two Dynamics modules (each including a compressor and gate/expander), De-Esser, and a Limiter. It is also possible to change their order in the signal path including parallel dynamics, which is essential for pro users.

Whether you're a professional who wants a quick fix or a quick start, or you're experimenting at home with mixing techniques, there are over 250 presets that sound great and are organised well into groups such as Bass, Drums, Guitar etc. Presets can also be applied globally across the whole plug-in, or for each individual module.

The EQ module has had the most attention on this latest version with new EQ curves such as Treble and Bass Baxandall filters and more. All modules also have excellent graphical visualisations such as spectrum and gain trace visualisations for a better understanding of how the sound is behaving.

iZotope offers all of this within one plug-in, and yet it still only utilises minimal CPU usage and boasts a zero latency operation mode. Alloy 2 can be used across multiple tracks and busses, which makes it a perfect complement to iZotope's mastering suite, Ozone. With this in mind, Alloy 2 includes an internal Meter Tap, which provides visual reference back into the Ozone5 Advanced Meter Bridge.

From The Manufacturer:

"Whatever the track, Alloy 2 provides a wealth of tools that give you both corrective and expressive control over your audio while mixing. We went out of our way to create a tool that not only raises the bar sonically, but also enables engineers to achieve a desired sound simply and efficiently with a more seamless workflow. iZotope developed Alloy 2 ultimately because of the success of our flagship mastering suites, Ozone 5 and Ozone 5 Advanced. Ozone owners were using Ozone 5 for mixing and tracking, not only for mastering. In response to that trend, we combined the best mixing and tracking tools with low CPU usage and zero latency operation in Alloy 2..."

Brett Bunting, Alloy Product Manager, iZotope

In Use

As most engineers would, when learning about a new tool, I loaded the plug-in onto a stereo drum track. I started flicking through the global presets, which instantly gave me a great idea of what was possible with this plug-in. I could clearly hear the unmistakable sonic result that was possible with Alloy 2, which is of a very high level.

Diving straight into the modules, I started with the Transient shaper, which in my opinion is one of the best I've heard. The major advantage over other transient shapers is being able to work in multi-band mode. For example, you can easily tighten up a drum track or make it more lo-fi with almost separate control over the hi-hat, snare, and kick. Before any other processing, I could significantly alter the sound of my drums with this module alone.

The next significant feature with-in Alloy 2 I was most looking forward to hearing was the exciter. This is one of the ways in which Alloy 2 achieves today's modern style of mixing: by offering digital simulations of analogue distortion and harmonics, which I quickly found out gave endless possibilities. Other exciters often only offer a drive or mix amount to your original signal, but Alloy 2 offers four different algorithms that are significantly different to suit a variety of sources; and you can even blend a mix between each: tape, warmth, retro, and tube. This module also supports a multi-band mode with stereo image enhancement on each band, which led me to create some great effects helping to place a difficult element in the mix.

Of course, Alloy 2 includes an EQ as part of the channel strip solution, but this EQ puts most other plug-in EQs to the test. In many cases I was loading the Alloy 2 plug-in on a channel just to utilise the EQ module with its eight filter bands and vintage simulation of analogue shelving and Baxandall curves. It is also very easy and fast to use with just the mouse also offering keyboard editable input for high detailed control.

For most of the modules in Alloy 2 there is a multi-

THE REVIEWER
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band mode, which works very well with great cross-overs – and I love the visual overlay of the frequency bands over the frequency spectrum display. You are able to solo each frequency band in turn and work on them individually to fully understand what's going on.

Both dynamics modules contain compressor/expander and gate, and of course, can be used in multi-band mode. These are great compressors, but best of all they can be arranged in parallel. Yes, that's right – you can have multi-band parallel dynamics if you so wish!

The last two modules – the De-esser and the Limiter – don't let the plug-in down either. The De-esser is very accurate, and with full attack and release controls as well as bandwidth, it works on even the most difficult voice. The limiter finishes off your signal flow very well, keeping control of any peaks you might have incurred from the Transient shaper and compressors. Personally, I have found myself to use the 'soft' version of the limiter in combination with a little compression to give a punchy sound.

Conclusion

iZotope set out to create a complete channel strip solution as an all-in-one plug-in with Alloy 1, and this second release has brought it right up to date with a modern style of mixing. Combining some great tools and a perfect blend between clean digital audio, and the excellent simulation of analogue equipment, Alloy 2 is defining what the industry has been working towards in terms of sonic results, even on iPod headphones! If used in the correct hands, it is sure to achieve great results, but it's not necessarily for producers wanting to create groundbreaking new synth sounds. However, at a very reasonable price, I believe Alloy 2 has set itself a new standard for its place in any studio, be it a large commercial facility or home PC.

Information

Feature Set
- **Six integrated tools: equalizer, dynamics, exciter, de-esser, transient shaper, limiter**
- **Zero latency performance**
- **Rich meter displays**
- **250+ presets and advanced controls**

Manufacturer
iZotope
www.izotope.com

Price Details
US$199.00/€159.00 (online download)

AKG K702 65th Anniversary Edition

Studio Headphones

The AKG K702 headphones are a nice piece of kit. They're a circumaural, open-back design with a professionally minimal look that couldn't offend anyone. There's a light head-band assembly with the double tube-supports on the outside, acting as a guide for the self-adjusting leather head-band proper, which works with an elastic attachment to the ear pieces. The ear pads are covered with a velvet-like material and present a good compromise between firm (so you know they will stay where they are put), and fluffy (so leaving them there doesn't turn into a chore).

I have an older set of K271 closed-back headphones that have all the same mechanical features (except for the 'leatherette' earpads), but the 702s are clearly more refined... More evolved. The movement of the head-band is smoother, the elasticity is better balanced (unless the 271s are just getting old), and the ear-pads are much more comfortable (the 271 earpads are always cold when you put them on). What is more, once in place, the 702s feel much lighter, which is odd, because there's only 5g difference between them. There is less squeeze with these as well – some headphones I own feel as if they are actually trying to meet in the middle, despite the fact my skull is in the way.

I put all this down to a better overall package... As I said before – more evolved.

And, given the techno-speak surrounding the K702s, they should be a step up in sound quality as well. The drivers employ 'Flat-wire Voice Coil' technology – low weight, rigid voicecoils for a more efficient motor system. The diaphragm is AKG's patented 'Varimotion' dual layer system with a thicker centre and thinner rim, or "better sonic perspective," "airier high end", and "powerful, punchy bass range".

The three metre cable is detachable, on the usual locking, three-pin mini XLR connector.

I guess, just as in the monitor world, some headphones are designed to sound a certain way, rather than sound correct. In headphones there's a tendency to over-do the 'air', often at the expense of muddy-mids, or a decent stereo image. Even though the image is sitting, disconcertingly, in the middle of your ear, the imaging is still valuable. No such sin afflicts the K702s –I found them to be incredibly well balanced with lots of detail. The low end is present, again well balanced, and does seem to have its own space and definition.

This stuff is incredibly important for a pair of open-back studio headphones, which if they do nothing else, should be a reliable full-range check on whatever it is you are up to. Of course, the open back means that nothing will be private – and the K702s don't hide much from the outside world; but again, that's not the point. If you want isolation, you need something else.

If you feel like the vocalist is actually using your mouth to sing, then there's no problem with the imaging, or the detail, or spectral balance. The sound from these headphones is natural – with no alienating harshness. They are, if you like, native to your head.

Information

Manufacturer
AKG
www.akg.com

Distributor
Sound Technology
www.soundtech.co.uk

Price Details
GB£480.00 (inc.VAT)

PAUL MAC is the Editor for Audio Media magazine.

"In application, I never had a need for more gain, whether critically listening via premium headphones such as the Shure SRH940, or as a performer…"

Strother Bullins

Aphex HeadPod 4

Four-Channel Headphone Amplifier

Aside from the new digital source input, HeadPod 4 is a 'like father, like son' story; it, too, is self-explanatory in use and feeds your headphone or IEM of choice (or, top four of choice) as much clean, uncoloured gain as an engineer, producer, musician, or casual listener would need – except for those that have (or want) significant hearing damage.

Thus, even the 454's clunky 'Turn Down Volume Before Plugging In' warning on its faceplate was refined ('Caution: Check Volume Before Use'), while maintaining the sentiment, on the HeadPod 4.

The HeadPod 4 features four individual stereo power amps, each with a quarter-inch TRS output; two balanced quarter-inch TRS analogue inputs, left and right channels (Analogue 1 via HeadPod 4's three-position Input Select); an unbalanced quarter-inch TRS stereo analogue input (Analogue 2); Coaxial (RCA) S/PDIF (IEC

60958) digital input, accepting 16 and 24-bit resolution, 44.1, 48, 88.2, and 96kHz sample rates (Digital). All inputs, plus DC power supply input and a new power on/off switch (significantly absent from the first HeadPod) are on the rear panel; all outs are on the front panel.

Gone is HeadPod 454's glaringly-bright blue-white 'On' LED (which, in a dark studio, could justifiably be called 'blinding'). Now, HeadPod 4 has a subtle green backlit Aphex logo to show its 'On' status, plus a smaller, plenty-bright, green LED to show present digital signal input.

With a design that remains Apple-influenced, HeadPod 4's user interface – no longer characterised by a rounded top panel in 'iMac white' with smooth silver knobs – is what I'll call 'masculine Mac', comparatively angular and chiseled, featuring a MacBook-complementary metal silver chassis, knurled black knobs and beveled edges all around. On that note, it seems the entire Aphex line has been redesigned/repackaged with this same aesthetic.

In Use

During the evaluation period, I swapped out my HeadPod 454 for the HeadPod 4 and continued with my normal work; this ranged anywhere between basic track cutting with multiple listeners, mixing ITB with multiple headphone and IEM references, and critical listening via each input source – balanced and unbalanced analogue as well as 16- and 24-bit, 44.1kHz or 88.2kHz sample rates.

The new digital input was especially nice when listening back to original stereo masters from an Alesis Masterlink at 24-bit/88.2kHz via S/PDIF. The HeadPod 4's manual touts its "much higher quality" DAC compared to "those found in audio interfaces and digital mixers." From what I heard, I would vouch that the combination of the HeadPod 4's DAC and headphone amplifier stage yielded no compromise conversion, amplification, and fidelity. My headphones and IEMs all sounded at their best. Aphex's claim of superiority to the built-in converter and amps in interfaces and mixers rings true, particularly considering the performance of the headphone circuits in the lower price-point interfaces and mixers in our marketplace (and it for sure was true when I compared the HeadPod 4 to the headphone output of the Masterlink).

In application, I never had a need for more gain, whether critically listening via premium headphones such as the Shure SRH940 or as a performer, interchangeably wearing premium custom-fit IEMs and lower-cost headphones while cutting live acoustic drum tracks at full volume. Again, the phrase "loud and clear" comes to mind – and, for a simple four-channel headphone amp, what else do you really need?

Summary

The HeadPod 4 is a perfect little desktop (or studio floor) monitoring tool: compact, great-sounding and, yes, visually striking. It would be my first recommendation to anyone in need of a solid and simple four-channel headphone amp.

Information

Feature Set

- Professional Monitoring for all headphone types
- Individual volume controls
- High headroom
- Ultra low distortion & wide frequency response
- S/PDIF Input
- Top panel input selection
- Four independent stereo power amplifiers

Manufacturer
Aphex
www.aphex.com

Price Details
GB£210.00 (inc.VAT)

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Frame Rates

The first part of Peter Jackson's *The Hobbit* trilogy has brought the technical subject of frame rates to public attention so Video Guide gives the low down on fps.

Like many things in cinema and television, moving pictures are an illusion. Motion picture cameras capture still images with momentary pauses between each as they are recorded on the film, videotape, or new media like solid state and memory cards. Each individual picture or image makes a frame. When a series of frames is projected or played back the human eye interprets it as a continuous sequence of moving images, even though they are in reality a sequence of stills.

This collaboration between technology and evolution depends on a natural human faculty called persistence of vision. This describes the effect of an image being retained on the retina of the eye for a moment – approximately one-third of a second – after it has been displayed and moved on. Because of this and the camera shutter blocking the transition from one frame to the next, the eye does not register any gap between one still picture and another, which creates the sensation of movement.

Persistence of vision can be maintained by having 16 frames passing before a camera or projector lens per second. Silent films in the late 19th and early 20th centuries were shot at rates between 14 and 24 frames per second (fps), with 16 fps (60 feet of film a minute) becoming the standard, as recommended in 1926 by the US Society of Motion Picture Engineers (now the Society of Motion Picture and Television Engineers, or SMPTE). This is because cameras and projectors of the time worked using a crank mechanism operated by a person turning a handle. The gearing used meant that two revolutions of the handle produced a frame frequency of 16 fps, which was regarded as efficient and simple, as well as producing something that looked right.

The 'Flicks'

But there was an inherent problem in the system. As the sequence of images alternates from the illuminated pictures to the dark gaps between frames, a flickering effect is produced, which explains why an older generation of cinema-goer referred to seeing films as going to the flicks. Flicker could be reduced by having a higher rate of frames a second, thereby increasing the speed of change between images and transitions.

This was achieved during the silent era through a three-bladed rotating shutter to block each frame three times, producing a flicker frequency of 48 a second. More serious filmmakers of the time were keen to shoot with a higher frame rate, but producers and studio executive executives were against this because it would use more film and so raise production costs.

Sound Synchronisation

The coming of sound in the cinema forced the issue. When audio first appeared in film production around 1927, it was recorded optically on to the film alongside the images to ensure synchronisation. But the 16 fps rate was too slow to produce satisfactory sound with the available equipment. Engineers concluded that more film had to pass over the audio head each second to achieve a recording with a greater range of frequencies and lower background noise.

This benefited the visual side because flicker begins to diminish at rates above 20 fps and is seen to go completely at 30 fps. The in-between rate of 24 fps that became the new industry standard was settled on primarily because of the American electrics supply. Mains electricity in the US operates at a frequency of 60 cycles a second, meaning an electric motor will have a speed of 1,440 revolutions a minute, or 24 a second. A frame rate of 24 fps was found to have almost no flicker and was fast enough to produce good quality audio recordings. Because the American film industry pioneered sound films, 24 fps became the norm with a two-bladed shutter to produce the flicker frequency of 48 a second.

This effectively shows each frame twice, which tricks the eye into not seeing flicker on film. In analogue television the same effect was achieved by the technique of interlacing. Pictures were scanned on alternate lines of an image, odd lines first followed by even. Each alternate scan formed a field and two fields produced a frame.

Digital Changes

In the digital age interlacing has given way to progressive scanning, with every line of a frame processed sequentially. In both TV and digital cinema the main frame rates are: 24p (for progressive), which corresponds to 24 fps and has the look of film, making it suitable for transfers from video; 25p, with 25 progressive fps, was derived from the analogue PAL TV standard of 50 interlaced fields a second and also has a filmic appearance; and 30p. This last format runs at 30 fps, which was occasionally used in film production for material that was to be transferred directly to video.

Digital cameras can operate at a range of frame rates, which is particularly useful for special effects. Footage shot at very low rates and then played back at normal speed produces a rapid sequence of events, as used in time-lapse photography. Conversely, shooting at very high speeds is used to produce super slow motion.

"In the digital age interlacing has given way to progressive scanning, with every line of a frame processed sequentially."

GLOSSARY
Frame Rate
A frame is an individual still image captured either on motion picture film or scanned on to videotape or tapeless digital media. The frame rate is the number of frames per second (fps) that passes in front of a camera lens or projector aperture. Silent films worked to 16 fps, while sound pictures were set at 24 fps to achieve good audio reproduction. Higher frame rates, such as 30 fps, are now used for video transfer but new digital processes are pushing this up to reduce flicker.

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The Hobbit: An Unexpected Journey

Peter Jackson's return to the world of JRR Tolkien was eagerly anticipated by fans of the director's earlier film adaptations of the *Lord of the Rings* trilogy. As is usual with something as loved and respected like *The Hobbit* not everyone is happy with the result.

The obvious gripe is how a short book (approximately 300 pages in hardback and 320 in paperback) can give rise to three three-hour films. More surprisingly audiences have also focused on a seemingly arcane technical issue – the film's frame rate. Jackson chose to use 48 fps, a progressive format designed to reduce motion blur as well as minimise further the amount of flicker.

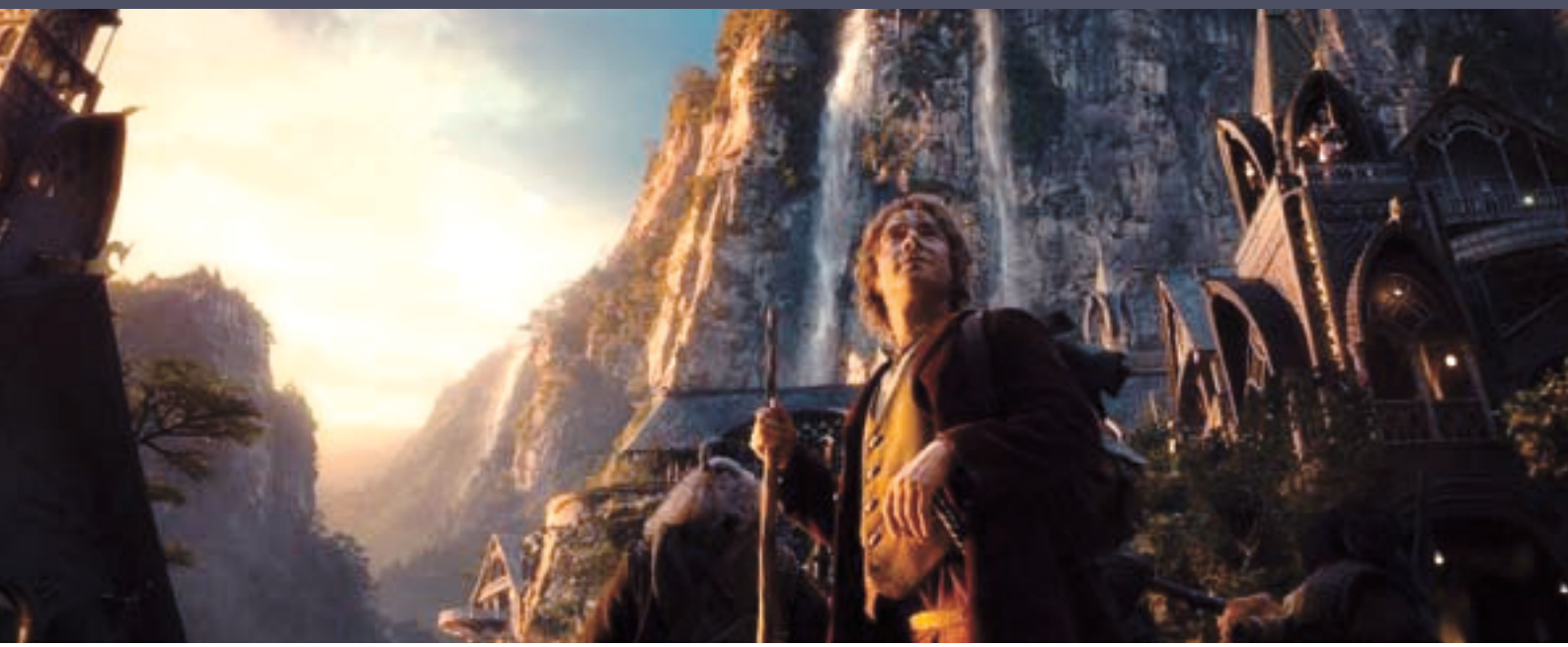
A major reason for using 48p was to produce *The Hobbit: An Unexpected Journey*, the first part of the new trilogy, in 3D. The film was shot on the RED Epic camera and Jackson commented to 3D Focus that 48 fps helps 3D "because suddenly you're removing a substantial amount of the motion blur that you get at 24 frames. Your eyes get a much smoother experience."

Jackson added that the higher frame rate makes the viewing experience 'more lifelike' because the gaps between frames is less perceivable: "At this point, 48 fps is a design choice for the 3D experience. The higher the frame rate, the more natural the 3D experience will be in terms of any kind of flickering and problems that we have with lower frame rates in 2D, so it's a technology choice. I think we have yet to determine what the high frame rate 2D experience will be. I think that is something that will be established over time as people tune themselves to a higher frame rate experience and start looking for movies that don't look like old fashioned movies. I think we are on an interesting cusp."

Speaking to the Orange County Register newspaper, Bob Birchard, Editor of the American Film Institute catalogue, observed, "Movies operate on a persistence of vision theory. Your brain creates the illusion of movement. The increased frame rate will require less mental filling in and give the illusion of a sharper, smoother picture." He added that the experience would be more real "in the sense that you're not perceiving the intervals between frames as much."

Critics and cinema-goers have been less technical in their appraisals. While most agree New Zealand looks wonderful doing its Middle Earth impersonation, some say the interior sets and make-up look obtrusively false. A general criticism of 48 fps is that because it does away with the familiar cinema-style flicker, everything appears *too* real, which ruins the suspension of disbelief necessary for fantasy films.

Jackson is apparently not so concerned about this, saying he wants to get young people away from their iPads and into cinemas. James Cameron, a filmmaker with similar sensibilities to Jackson, is said to be looking at shooting the two sequels to *Avatar* in higher frame rates, again with 3D in mind.



PRODUCT FOCUS

Sony Professional F65

Digital cinematography camera

Contact: www.sony.co.uk

Introduced at the beginning of 2012, the F65 digital cinematography camera is the flagship of Sony's CineAlta range. It is smaller and lighter than the F35 and is claimed to offer improved stability and handling, particularly for Steadicam work.

The F65's main features include: Super 35mm CMOS sensor with 20 Mega pixels, making it suitable for HD, 2k and 4k resolutions; recording on to SRMemory using a SR-R4 SRMASTER 4k portable recorder dock, plus a high-speed SRMemory platform for recording RAW data at speeds up to 5Gbps; an optional mechanical rotary shutter to eradicate the rolling shutter effect found on CMOS sensors; and four Neutral Density filters, which come with the rotary shutter.

The camera was updated for IBC 2012 with v2.0, which delivers a recording capability of up to 120 frames a second. This high frame rate is aimed at slow motion work, particularly in the commercials market.

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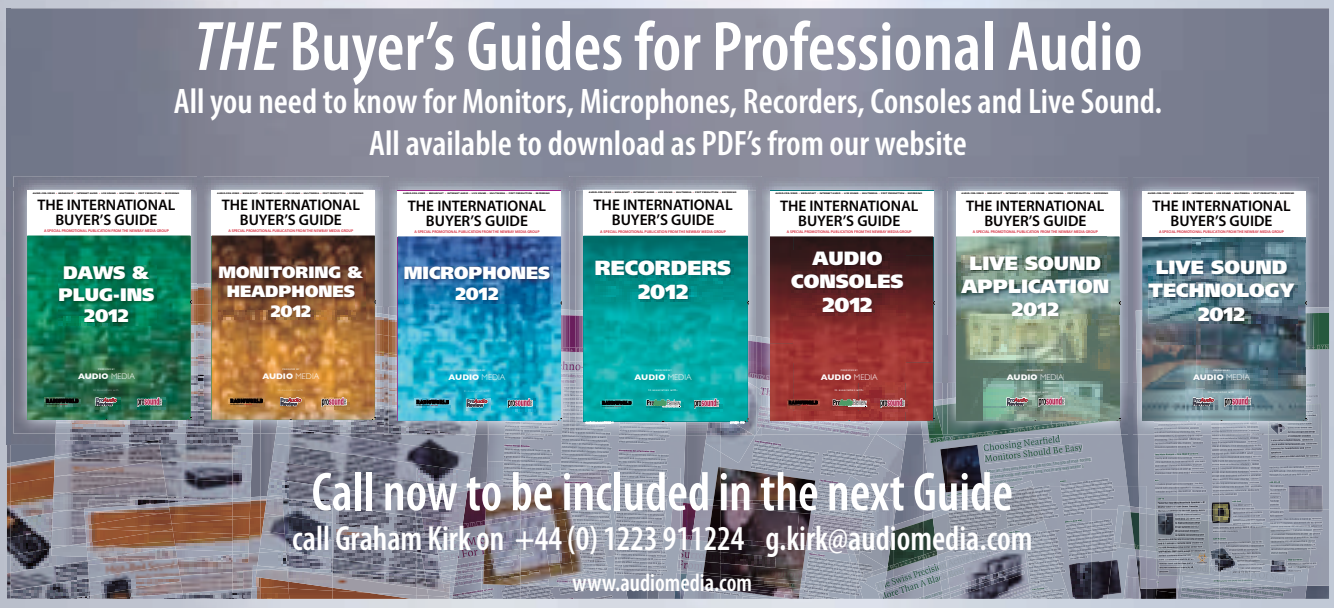
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The Matrix

KEVIN HILTON

The ongoing release of multi-story epic *Cloud Atlas* is a timely reminder of co-directors the Wachowskis' mind-bending journey into cyberspace, *The Matrix* (1999). Even with the eye boggling, trend-setting visual effects, stylishly choreographed martial arts and Carrie-Ann Moss in very tight trousers, sound is a defining part of the earlier film, underpinning the histrionic action scenes and differentiating the different realities and life forms involved.

Our first impressions of the world of *The Matrix* are set by the opening sequences. Orchestral music with metallic sounding strings and electronic undertones, composed by Don Davis, gives way to the buzzing of a phone line as it connects. On the screen are many lines of ones and noughts in green on a black background. The voices of a woman and a man have a prickly, cryptic conversation about "The One".

"The gun battles with the Agents and cops are almost deafening, the sound of spent cartridges hitting the ground adding to the cacophony. The drama is heightened by silence when the shooting stops, with the only noise that of Neo's boots on the floor as he walks away."

Kevin Hilton

As the call ends both the image and the sound 'bend', signalling a transition into live action. In a disused warehouse police officers have cornered a young woman – Trinity (Moss) – dressed in leather and latex who, despite the darkness, is wearing sunglasses. She makes her escape, dodging the cops' bullets by unaccountably running up and along the wall. This leads to the film's signature visual effect, so influential it spawned a verb, 'to Matrix'. Trinity faces down a cop and then jumps in the air. Both the picture and the audio slow down and pause as Moss hangs in mid-air. The camera swings round to a different angle and the action – both visually and aurally – resumes, with Trinity kicking the officer in the head.

The chase is picked up by secret service types in black suits and dark glasses, with much whooshing and zooming as they pursue Trinity over rooftops. She gets to a call box where the phone is ringing but has to jump out of the way as a truck driven by Agent Smith (Hugo Weaving) crashes into it. The image cuts to the camera speeding through a tunnel of light accompanied by bass notes on the soundtrack.

Someone soon to have his life and perception of existence changed by these events is software programmer Thomas Anderson, who leads a double life as computer hacker Neo (Keanu Reeves). Through anonymous email messages and symbols he ends up at a club where he meets Trinity. Thumping bass in the dance music segueways into Neo's alarm clock the next morning.

Anderson/Neo is later arrested by the Agents and taken to a police station. In the interview room Agent Smith produces a large valve-like device, which transforms into an insect with a sickening squelching sound. The noises become even more disgusting as the thing burrows into Neo's stomach. The scene cuts to black and Neo wakes up in his own bed. Trinity picks him up and, in the car, uses something like a vacuum cleaner to detect and remove the creature inside Neo. When sucked out the bug – this is one of the film's few attempts at humour – turns back into an inanimate object, something confirmed by a clinking noise when it is thrown out of the car window and hits the road.

During the first meeting between Neo and cyber-rebel Morpheus (Laurence Fishburne), the sound design makes a departure from the modern use of audio in preceding scenes and resorts to old standbys to convey dramatic background: driving rain and thunder. This adds tension while Morpheus tells Neo the truth of human existence: in the past people created artificial intelligence and were overthrown by machines, who now use humans as 'batteries' to generate electricity.

Everyday life is a construct known as the Matrix, while human beings exist in pods as part of The Power Plant. The sight of this is shocking enough, but the true enormity is underlined by audio. In the June 1999 issue of *Audio Media* Sound Designer Dane Davis explained how he recorded the sound of 60,000 volts produced by a Tesla coil. This provides the bass hum of the Plant, combined with arcing to make a rhythmic cycle.

Morpheus gives Neo the option of staying within the Matrix or becoming part of true reality to fight back against the machines and the Agents, who are really computer programs in human form. During the film the Wachowskis make many references to Lewis Carroll's Alice stories; when Neo touches a mirror – the looking glass – it becomes liquid, accompanied by a moulding noise signifying that reality is changing as he moves between worlds.

This is the subtle, story-telling side of the sound design. What really grabs the attention is the aural assault of the action sequences. Thousands of rounds of bullets are expended during the shoot-outs and to match the stunning visuals Dane Davis recorded an armourer firing an Uzi sub-machine gun at different layers of material. By putting a silencer on the weapon he could isolate the penetration of the shells. A telephone directory was also placed in front of the muzzle to slow the bullets' velocity. Davis then compressed and processed the tracks in Pro Tools so the bullets could be heard to spin and force their way through walls.

The gun battles with the Agents and cops are almost deafening, the sound of spent cartridges hitting the ground adding to the cacophony. The drama is heightened by silence when the shooting stops, with the only noise that of Neo's boots on the floor as he walks away.

Many gun battles and the almost all-consuming conflagration when a helicopter crashes into a glass building lead up to the final showdown between Neo and Smith. They fling each other round a subway platform and end up on the track, with a train bearing down. Neo manages to jump clear; as the engine hits him, Smith disappears with a computer glitch sound, reminding us he is not real but will return.

Now dressed in the obligatory leather and dark glasses, Neo joins the fight against the machines. He makes a call to the AI, throwing down the gauntlet, his voice distorting as it travels through the circuits of The Matrix. Or does it?

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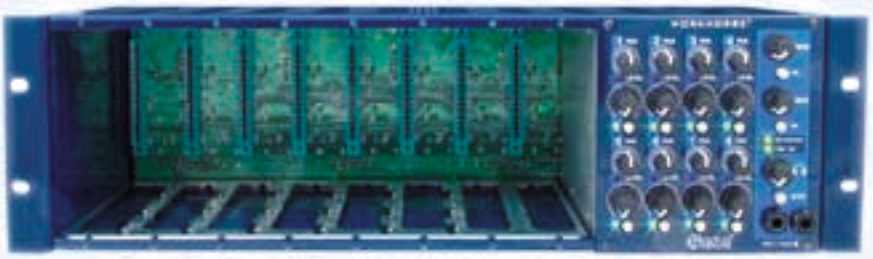

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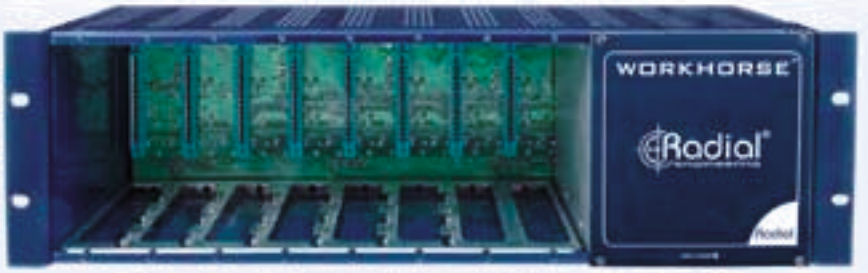

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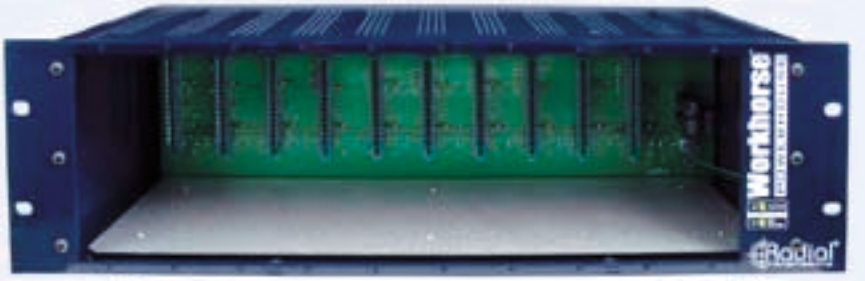

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